

1 IN THE UNITED STATES DISTRICT COURT
 2 FOR THE EASTERN DISTRICT OF TEXAS
 MARSHALL DIVISION

3	SOLAS OLED LTD.,) (CIVIL ACTION NO.
) (2:19-CV-152-JRG
4	PLAINTIFF,) (
) (
5	VS.) (
) (
6	SAMSUNG DISPLAY CO., LTD.,) (
	SAMSUNG ELECTRONICS CO.,) (MARSHALL, TEXAS
7	LTD., SAMSUNG ELECTRONICS) (MARCH 2, 2021
	AMERICA, INC.,) (8:22 A.M. - 6:12 P.M.
8) (
	DEFENDANTS.) (

9

10 TRANSCRIPT OF JURY TRIAL

11 BEFORE THE HONORABLE JUDGE RODNEY GILSTRAP

12 UNITED STATES CHIEF DISTRICT JUDGE

13

14 APPEARANCES:

15 FOR THE PLAINTIFFS:

16 MR. MARC FENSTER
 17 MR. REZA MIRZAIE
 18 MR. ADAM S. HOFFMAN
 MR. NEIL A. RUBIN
 19 MR. JACOB R. BUCZKO
 MR. JAMES S. TSUEI
 20 RUSS AUGUST & KABAT
 12424 Wilshire Boulevard, 12th Floor
 Los Angeles, CA 90025

21 MR. T. JOHN WARD, JR.
 22 MS. CLAIRE ABERNATHY HENRY
 MS. ANDREA L. FAIR
 23 WARD, SMITH & HILL, PLLC
 1507 Bill Owens Parkway
 Longview, TX 75604

24

25

1 FOR THE DEFENDANTS:

2 MS. MELISSA R. SMITH
3 GILLAM & SMITH, LLP
4 303 South Washington Avenue
Marshall, TX 75670

5 MR. JEFFREY H. LERNER
6 MR. JARED R. FRISCH
7 MR. DANIEL E. VALENCIA
8 MR. DANIEL W. CHO
9 MR. TAREK J. AUSTIN
10 MR. ERIC T. O'BRIEN
11 MR. DAVID J. CHO
12 MR. JORDAN V. HILL
13 COVINGTON & BURLING LLP
14 One CityCenter
850 Tenth Street, NW
Washington, DC 20001-4956

15
16
17
18 MR. ROBERT T. HASLAM
19 COVINGTON & BURLING LLP
20 3000 El Camino Real
21 5 Palo Alto Square, 10th Floor
22 Palo Alto, CA 94306-2112

23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000

COURT REPORTER: Ms. Shelly Holmes, CSR, TCRR
Official Court Reporter
United States District Court
Eastern District of Texas
Marshall Division
100 E. Houston
Marshall, Texas 75670
(903) 923-7464

(Proceedings recorded by mechanical stenography, transcript
produced on a CAT system.)

08:19:18 1 P R O C E E D I N G S

08:19:18 2 (Jury out.)

08:19:19 3 COURT SECURITY OFFICER: All rise.

08:19:20 4 THE COURT: Be seated, please.

08:22:23 5 Are the parties prepared to read into the record

08:22:31 6 those items from the list of pre-admitted exhibits that

08:22:33 7 were used during yesterday's portion of the trial? If so,

08:22:37 8 please go to the podium and make your offerings.

08:22:40 9 MS. HENRY: Plaintiff is ready, Your Honor.

08:22:42 10 THE COURT: Please proceed.

08:22:43 11 MS. HENRY: Plaintiff reads into the record

08:22:47 12 PTX-549, PTX-550, PTX-742, and PTX-745.

08:22:54 13 THE COURT: Any objection from Defendants to that

08:22:58 14 rendition?

08:22:59 15 MR. VALENCIA: No, Your Honor. Dan Valencia for

08:23:02 16 the Defendants. We do have PTX-642, as well.

08:23:07 17 MS. HENRY: Your Honor, that was one that was

08:23:09 18 offered by Defendants, so I was going to let them read it

08:23:12 19 into the record.

08:23:13 20 THE COURT: All right. Let me hear a rendition

08:23:15 21 from Defendants as to what they used during yesterday's

08:23:17 22 portion of the trial.

08:23:19 23 MR. VALENCIA: Good morning, Your Honor. We've

08:23:20 24 got. I think it's DTX-642, which was used with Mr. Padian

08:23:25 25 yesterday.

08:23:25 1 THE COURT: Anything further?

08:23:28 2 MR. VALENCIA: No, Your Honor.

08:23:28 3 THE COURT: Also, the Plaintiff's exhibit that was
08:23:30 4 mentioned? Or did I misunderstand?

08:23:39 5 MR. VALENCIA: No, Your Honor. I -- with the
08:23:41 6 Court's indulgence for a minute.

08:23:47 7 MS. HENRY: If that's what you say, I'm sure
08:23:49 8 that's right.

08:23:50 9 MR. VALENCIA: Your Honor, it is DTX-642.

08:23:52 10 THE COURT: Okay.

08:23:53 11 MR. VALENCIA: And nothing further beyond that.

08:23:55 12 THE COURT: All right. Then no objection from
08:23:57 13 Plaintiff, Ms. Henry?

08:23:59 14 MS. HENRY: She's telling you that's not right.

08:24:04 15 THE COURT: Hang on.

08:24:04 16 Mr. Valencia, consult with your co-counsel.

08:24:07 17 MR. VALENCIA: Thank you, Your Honor. Will do.

08:24:28 18 Thank you for your patience, Your Honor. It
08:24:30 19 actually is PTX-642, I misspoke.

08:24:34 20 THE COURT: All right. Anything further from
08:24:36 21 Defendants?

08:24:37 22 MR. VALENCIA: No, Your Honor, just the issue we
08:24:38 23 talked about this morning.

08:24:39 24 THE COURT: And I'll take that up in a minute.

08:24:41 25 MR. VALENCIA: Thank you.

08:24:42 1 THE COURT: And I gather Plaintiff has no
08:24:45 2 objection to Defendants' rendition, Ms. Henry.

08:24:47 3 MS. HENRY: No objection, Your Honor.

08:24:49 4 THE COURT: All right. Thank you.

08:24:50 5 Mr. Valencia, we'll transition to what you alluded
08:24:53 6 to. There was a request in chambers this morning for
08:24:56 7 Defendants to make a notation in the record regarding the
08:24:58 8 preservation of an exhibit-related issue.

08:25:01 9 Please proceed.

08:25:02 10 MR. VALENCIA: Thank you, Your Honor.

08:25:02 11 So in view of the Court's denial of Defendants'
08:25:05 12 Daubert motion to exclude the opinions of Stephen Dell,
08:25:08 13 that's Docket No. 138, and Defendants' motions in limine
08:25:12 14 relating to non-comparable license agreements, that's
08:25:16 15 Docket No. -- excuse me, 224, both of which the Court
08:25:20 16 denied in its order in Docket No. 279, Defendants would
08:25:24 17 like to preserve their objections to the following
08:25:26 18 documents on Plaintiff's exhibit list. PTX-506, 509, 517,
08:25:33 19 534, 535, 536, 537, 539, 540, 541, 542, 543, 645, 646, 647,
08:25:48 20 648, 649, 743, 744 for the reasons set forth in Defendants'
08:25:55 21 briefings. And, again, those are all PTX exhibits.

08:25:59 22 THE COURT: Duly noted.

08:26:03 23 MR. VALENCIA: Thank you, Your Honor.

08:26:05 24 THE COURT: All right. Is Plaintiff prepared to
08:26:07 25 call their next witness?

08:26:09 1 MS. FAIR: Yes, Your Honor.

08:26:09 2 THE COURT: All right. Let's bring in the jury,
08:26:11 3 please, Mr. Johnston.

08:27:00 4 COURT SECURITY OFFICER: All rise.

08:27:03 5 (Jury in.)

08:27:20 6 THE COURT: Please be seated.

08:28:22 7 Welcome back, ladies and gentlemen of the jury.

08:28:29 8 We'll proceed with the next Plaintiff's witness.

08:28:32 9 Plaintiff, call your next witness.

08:28:34 10 MS. FAIR: Your Honor, the Plaintiff calls
08:28:38 11 Mr. Jalil Shaikh.

08:28:40 12 THE COURT: All right. The witness will come
08:28:42 13 forward and be sworn, please.

08:28:54 14 (Witness sworn.)

08:28:59 15 THE COURT: Please come around, sir. Have a seat
08:29:04 16 here at the witness stand.

08:29:08 17 There's water there if you'd like to pour some,
08:29:18 18 and if you'll adjust the microphone so that it's at a good
08:29:22 19 position, then we'll proceed.

08:29:28 20 All right. Counsel, you may proceed with your
08:29:34 21 direct examination of the witness.

08:29:36 22 MS. FAIR: Thank you, Your Honor. And I realized
08:29:39 23 yesterday I forgot to introduce myself. I'm Andrea Fair.
08:29:42 24 I'm partners with Johnny Ward out in Longview -- over in
08:29:47 25 Longview, if you will.

JALIL SHAIKH, PLAINTIFF'S WITNESS, SWORN

DIRECT EXAMINATION

BY MS. FAIR:

Q. Would you introduce yourself to the jury, please?

A. My name is Jalil Shaikh.

Q. And what do you have to do with this case?

A. I'm one of the co-inventors in this patent '311.

Q. Have you ever testified in front of a jury before?

A. No, I have not.

Q. Are you a little nervous?

A. Yes, I am.

Q. I want to talk to you a little bit about the patent and your invention in a minute, but, first, could you tell us a little bit about yourself? What do you do for a living?

A. I'm engineer by profession. I worked in the computer industry for about 35 years, computer chip industry, just small electronics which is the brains of computers, cell phones and so on.

THE COURT: Let me stop just a minute.

Mr. Shaikh, pull the microphone a little closer to you, sir. It's a big courtroom. I'd like to make sure everybody even in the back row is able to hear you.

THE WITNESS: Okay.

THE COURT: Thank you. Let's proceed.

Q. (By Ms. Fair) And are you still working?

08:30:50 1 A. I stopped working last year to take care of my mother
08:30:54 2 and wife.

08:30:55 3 Q. Do you and your wife have children?

08:30:56 4 A. Yes, we have four children.

08:30:58 5 Q. Tell us about them. How old are they? What do they
08:31:01 6 do?

08:31:01 7 A. My eldest one is 35 years old, daughter. She has MBA.

08:31:06 8 And my second daughter is 31 years old. She has Master's

08:31:16 9 in healthcare, occupational therapy. And my son is 24 --

08:31:20 10 28 years old. He is engineer. He works for Johnson &

08:31:24 11 Johnson. My youngest one is 26 years old, daughter. She

08:31:30 12 finished her Bachelor's, and she's trying to decide what to

08:31:33 13 do next.

08:31:33 14 Q. Now, you don't sound like you're from around here. Can

08:31:40 15 you tell us where you're from?

08:31:41 16 A. I was born and raised in Pakistan.

08:31:45 17 Q. When did you come to the U.S.?

08:31:46 18 A. 1981.

08:31:47 19 Q. What brought you here?

08:31:48 20 A. I wanted to do my Master's in electrical engineering.

08:31:55 21 That's why I came to U.S.

08:31:56 22 Q. What was your plan when you came to the U.S.?

08:32:00 23 A. I bought one-way ticket to come to U.S. to do my

08:32:08 24 Master's in electrical engineering.

08:32:10 25 Q. Why is it that you wanted to come to the U.S. to

08:32:15 1 further your education?

08:32:16 2 A. Well, at that time, early '80s, U.S. was the best place
08:32:24 3 to do engineering, and especially electrical engineering.

08:32:28 4 So I was very motivated to come to U.S.

08:32:31 5 Q. Where did you end up going to school here?

08:32:33 6 A. I went to Rutgers, New Jersey.

08:32:38 7 Q. And what degree were you working on?

08:32:40 8 A. Master's in electrical engineering.

08:32:42 9 Q. So I take it you'd studied some electrical engineering
08:32:47 10 before?

08:32:47 11 A. Yes. I have Bachelor's in electrical engineering from
08:32:54 12 Pakistan.

08:32:54 13 Q. Was it intimidating to have studied electrical
08:32:58 14 engineering in Pakistan, come to a brand new country to
08:33:02 15 continue your studies?

08:33:03 16 A. Yes, it was. My books -- engineering books in Pakistan
08:33:09 17 were in English, so that was okay. But coming thousands of
08:33:14 18 miles away, away from family and all, that was hard.

08:33:20 19 Q. When did you graduate from Rutgers with your Master's
08:33:25 20 in electrical engineering?

08:33:26 21 A. 1983.

08:33:27 22 Q. Where did you go from there?

08:33:28 23 A. I went to California, San Francisco Bay area to work
08:33:37 24 for company -- National Semiconductor, which is now part of
08:33:41 25 Texas Instruments.

08:33:43 1 Q. And they do the chips like it was you mentioned a
08:33:46 2 little bit earlier, you had spent your career working on?

08:33:49 3 A. That is correct. They worked on small semiconductor
08:33:55 4 chips which were in different applications like computers,
08:33:59 5 cell phone, automotive, appliances.

08:34:02 6 Q. What did you learn while you were at National?

08:34:05 7 A. Well, I learned a lot of things. As an example,
08:34:14 8 design, manufacturing, marketing, new product definition,
08:34:19 9 customer presentations, and several basic things. And I
08:34:24 10 also did my MBA while I was working at National
08:34:29 11 Semiconductor.

08:34:29 12 Q. The '311 patent that we're talking about in this case
08:34:33 13 is the touch sensor patent. When did you start working on
08:34:37 14 touch sensors?

08:34:37 15 A. Well, around 2007, I was hired by company Validity
08:34:49 16 Sensors as a CEO, which was in fingerprint reader
08:34:58 17 technology. That's when I got introduced to touch sensor
08:35:01 18 area.

08:35:01 19 Q. And you said fingerprint reader technology. Can you
08:35:04 20 tell us what it was you were working on at Validity
08:35:09 21 Sensors?

08:35:09 22 A. So, as I said, it is a fingerprint reader, meaning to
08:35:13 23 recognize that it is you. They were part of -- actually
08:35:18 24 even Samsung phone, HP computers. It was identification to
08:35:24 25 make sure it is you.

08:35:31 1 Q. What ended up happening to Validity Sensors?

08:35:36 2 A. Well, eventually that company was sold to another
08:35:40 3 company after I left.

08:35:40 4 Q. Where were you when you came up with the invention with
08:35:43 5 your co-inventors on the '311 patent?

08:35:44 6 A. I was at Atmel.

08:35:48 7 Q. How did you end up at Atmel?

08:35:50 8 A. Well, when I was at Validity Sensors, company was a
08:36:03 9 turnaround for me. And company was making very good
08:36:06 10 progress in technology and customer base and so on. I was
08:36:10 11 able to attract multiple buyers for that business, and one
08:36:17 12 of the offer was from Mr. Steven Laub, who was CEO of Atmel
08:36:25 13 at that time.

08:36:25 14 Q. So when did he invite you to join Atmel?

08:36:29 15 A. It was late 2009 when we interacted, and I started at
08:36:35 16 Atmel February 1st, 2010.

08:36:38 17 Q. What was it that you were going to be working on when
08:36:41 18 you joined Atmel?

08:36:42 19 A. Well, it was a very secretive project, and I was not
08:36:50 20 even told what I'll be working on. Only thing I was told
08:36:56 21 is, hey, Jalil, it fits your background of taking the
08:37:01 22 concept and commercializing it, so we want you to come
08:37:03 23 over.

08:37:03 24 Q. Why would you go work somewhere if you don't even know
08:37:06 25 what you're going to be working on?

08:37:08 1 A. Well, since I interacted with Mr. Steven Laub before
08:37:11 2 when I was CEO of Validity Sensors, I was very comfortable
08:37:18 3 with him. We became good friends. So I was sure it would
08:37:22 4 be something good for me.

08:37:23 5 Q. What did you learn you would be working on once you got
08:37:28 6 hired?

08:37:28 7 A. Once I got hired, it was secret project even within
08:37:32 8 Atmel. Very few people knew what was going on, and I
08:37:36 9 learned that I would be working on a new concept, which is
08:37:41 10 touch sensors based on metal.

08:37:45 11 Q. What type of company was Atmel that it was so
08:37:51 12 confidential and top secret that you would be starting a
08:37:55 13 touch sensor business for them?

08:37:56 14 A. Well, Atmel was also, like I mentioned previously, a
08:38:01 15 National -- like National Semiconductor. They were making
08:38:05 16 small computer chips to, again, power cell phone,
08:38:11 17 computers, and so on.

08:38:12 18 But they also had a very large business in touch
08:38:20 19 controllers.

08:38:21 20 Q. And how does a touch controller relate to a touch
08:38:25 21 sensor?

08:38:25 22 A. Well, we are all familiar with cell phones. So when we
08:38:33 23 touch on cell phone, we are touching a touch sensor, which
08:38:37 24 is behind the glass, and that is a touch sensor.

08:38:44 25 And once we touch, the signal goes to the

08:38:48 1 controller, which is behind -- underneath the display or
08:38:54 2 some other place, which processes the information,
08:38:56 3 depending on where you touch the touch sensor. So touch
08:39:02 4 sensor signal goes to the computer chip, which is called
08:39:05 5 touch controller.

08:39:06 6 Q. How does the touch sensor itself work?

08:39:08 7 A. Well, in a very, very simplistic way. There are
08:39:18 8 vertical lines and there are horizontal lines, and wherever
08:39:23 9 they crisscross, it -- because of the electricity forced
08:39:30 10 into the wires, it holds a charge.

08:39:35 11 And when we touch with our finger, that charge
08:39:43 12 disappears through our body to the ground, and the touch
08:39:47 13 controller recognizes that location, and says, okay, I need
08:39:50 14 to do something about it.

08:39:51 15 Q. So you're saying that when you touch a touch sensor,
08:39:54 16 the electricity comes into your finger and runs through you
08:39:58 17 to the ground?

08:39:58 18 A. Yes, that is correct.

08:39:59 19 Q. How is it that we don't get shocked when we touch touch
08:40:03 20 sensors?

08:40:03 21 A. It's very small electricity, very small.

08:40:07 22 Q. What are the -- what makes up a touch sensor? You said
08:40:11 23 there's these crisscross lines. How are they put together?

08:40:17 24 A. Yeah. So, as I mentioned, there are X and Y lines, and
08:40:24 25 they -- the intersections on how you make those different

08:40:30 1 technologies. What I was working on was a plastic
08:40:34 2 substrate -- I'm going to continue to use very simple
08:40:37 3 words -- plastic substrate, and we printed X line --
08:40:41 4 horizontal lines and vertical lines on both sides of that
08:40:45 5 phone, which created that capacitance when the computer
08:40:52 6 chip pushed the electricity to those intersections.

08:40:56 7 Q. Can you remind us, in 2010, what was the touchscreen
08:41:03 8 industry like?

08:41:04 9 A. Well, it was very early on of touch technology. I
08:41:10 10 remember Apple introduced their first phone around 2007 or
08:41:13 11 so. Cell phone screens were very, very small. And that
08:41:23 12 took off the capacitive touch technology, and the race was
08:41:27 13 on to add more capacity and so on. So it was very infancy.

08:41:33 14 Q. When you're saying "it was infancy," you're meaning --
08:41:36 15 I mean, we had track pads on computers and laptops. What
08:41:40 16 was different about the touch sensors, the touchscreens
08:41:46 17 that were going on in 2007, 2010 and onward?

08:41:48 18 A. Well, track pads and all that, they don't require the
08:41:51 19 very clear plastic film. They can be black or white or
08:41:55 20 whatever. Doesn't matter. But if it has to be on a
08:41:58 21 computer, on a cell phone display, it has to be very clear.

08:42:03 22 Q. So what was it that was being used in the industry at
08:42:07 23 the time when you started working on the touch sensor
08:42:11 24 business at Atmel for the crisscross lines that would run
08:42:16 25 the current through it?

08:42:18 1 A. Well, even at that time, yes, it was a clear plastic
08:42:22 2 film or similar thing. But the lines, conductive lines,
08:42:26 3 horizontal/vertical lines were made of indium tin oxide,
08:42:33 4 which is see-through material. It's some kind of paste you
08:42:36 5 paste on that, and those were conductive lines.

08:42:39 6 Q. And what material -- you told us when you joined Atmel
08:42:43 7 they were working with metal. Can you explain what the
08:42:47 8 metal was they were working with at Atmel to run the
08:42:50 9 electrical current through for the touch sensors?

08:42:52 10 A. Atmel was working -- the technology was, they were
08:42:56 11 working with copper --

08:42:58 12 THE COURT: Just a minute. Just a minute.

08:43:00 13 Somebody's cell phone ringing in the middle of the
08:43:02 14 trial? I heard a cell phone. Whose was it?

08:43:20 15 Is somebody going to tell me?

08:43:25 16 I don't think I dreamed it. All right. There'll
08:43:32 17 be no further disruptions. If that happens again, I'll
08:43:36 18 take appropriate action. If you've got a device with you,
08:43:39 19 make sure it's silenced.

08:43:41 20 As you heard me tell the jury yesterday, they
08:43:43 21 don't get to bring their cell phones in the courtroom. So
08:43:47 22 if you're going to take the advantage that they don't have,
08:43:50 23 you're going to have to make sure it's silent. I'll have
08:43:52 24 no more such interruptions.

08:43:54 25 All right. Counsel, please continue.

08:43:56 1 MS. FAIR: Thank you, Your Honor.

08:43:57 2 Q. (By Ms. Fair) Mr. Shaikh, you were telling us about
08:44:00 3 the metal that Atmel was using to run the current through
08:44:03 4 as compared to the clear indium tin oxide. Could you tell
08:44:07 5 us what Atmel was working with?

08:44:09 6 A. So Atmel was working at that time with, again, clear
08:44:12 7 plastic film, and they were working with copper lines,
08:44:15 8 horizontal and vertical lines printed on both sides.

08:44:20 9 Q. You're telling this jury that you were putting copper
08:44:23 10 in front of a display and expecting someone to see through
08:44:26 11 it?

08:44:27 12 A. Yes, that was a common reaction I got from the
08:44:32 13 customers in the very beginning. But the lines were so
08:44:37 14 thin, they were about 20 times narrower and thinner than
08:44:44 15 human hair so that we cannot see with naked eye.

08:44:47 16 Q. Why was it that Atmel was looking to work with metal,
08:44:52 17 copper, metal mesh I think you had said, instead of the
08:44:57 18 clear indium tin oxide?

08:45:00 19 A. Well, there were -- there are many, many advantages
08:45:04 20 against indium tin oxide. One very important one -- there
08:45:09 21 are several -- I will start from the first one -- is that
08:45:13 22 indium tin oxide is very high resistance, meaning you have
08:45:18 23 to push lot of power or the computer chip has to push lot
08:45:23 24 of force to move the electrons into indium tin oxide.
08:45:29 25 Whereas a copper, you don't have to put so much pressure

08:45:32 1 and force or voltage to push the electrons. So that made
08:45:37 2 it very, very efficient.

08:45:40 3 To give you a reference, it was 10 times --
08:45:46 4 probably more -- 10 times better with copper.

08:45:50 5 Q. What advantages are there when you're using a material
08:45:53 6 that has a lower resistance so you can push the electrical
08:45:57 7 current through it faster?

08:45:59 8 A. Well, the first -- the most important thing I will say
08:46:05 9 as a computer user, also a cell phone user, let's think
08:46:10 10 about it that we are using a 10-year old computer versus
08:46:14 11 today's computer. When you're working, how slow it is
08:46:18 12 booting up and how slow it is doing things, it is same
08:46:22 13 thing.

08:46:22 14 With indium tin oxide, you touch, and it is a slow
08:46:28 15 response. With copper, since it is so much faster,
08:46:34 16 electrons move so much faster, reaction is fast.

08:46:38 17 Q. You said there were other advantages to the metal mesh
08:46:42 18 over the indium tin oxide. Can you tell us about that?

08:46:44 19 A. Sure. So once we had this performance that you can
08:46:47 20 touch it very fast and so on, the other big advantage was
08:46:52 21 my customers were pushing me that, look, there is a big
08:46:56 22 border around the display. How can you help us to do it
08:47:00 23 narrow and narrow and narrow?

08:47:01 24 And so since we printed the whole thing with X and
08:47:08 25 Y lines and those connecting lines going to the computer

08:47:11 1 chip, at same time, as opposed to indium tin oxide, which
08:47:17 2 had to have some connectors, there was no way they could
08:47:22 3 compete with us to reduce the borders so that the display,
08:47:29 4 the body visual, is the maximum.

08:47:30 5 Q. If metal mesh has these advantages, why didn't the
08:47:34 6 industry just switch from indium tin oxide to metal mesh?

08:47:37 7 A. I wish it was that easy, but it was not.

08:47:44 8 One of the big reasons was that we wanted to put
08:47:48 9 copper lines so that they are very, very, very, very thin.
08:47:53 10 And sticking very narrow lines on a plastic film on both
08:48:01 11 sides was very, very difficult, and that's where -- was the
08:48:05 12 differentiation.

08:48:06 13 Q. Can you -- what makes it difficult? What happens when
08:48:09 14 you try and put these really thin metal lines on a clear
08:48:14 15 surface?

08:48:14 16 A. Well, when you put those narrow lines on the film, then
08:48:21 17 the concern is during the downstream manufacturing process
08:48:26 18 and so on, the copper lines will just rub off, and they
08:48:30 19 won't stick and stay on the plastic film.

08:48:34 20 Q. And were you able to figure out a way to get the copper
08:48:37 21 lines to stick and not have this mesh rub-off problem?

08:48:42 22 A. That is very correct. Yes, we had to figure it out,
08:48:45 23 how we could hold those thin copper lines so that they
08:48:48 24 don't rub off, yes.

08:48:50 25 Q. And so tell us how you and your supplier were able to

08:48:53 1 figure out how to get those metal lines to stick?

08:48:56 2 A. Again, in a very simplistic way, there was a glue which
08:49:03 3 we used, chemical glue, which we were able to work and
08:49:07 4 perfect with our partner so that thin copper lines stay.

08:49:13 5 Q. Were others in the industry trying to make this switch
08:49:16 6 from indium tin oxide to metal mesh?

08:49:18 7 A. That is correct.

08:49:18 8 Q. Can you tell us about what you're aware of from being
08:49:22 9 in the industry about that?

08:49:22 10 A. Well, I know for sure there was a very large company by
08:49:28 11 the name 3M.

08:49:31 12 Q. The Post-it note company?

08:49:33 13 A. Excuse me?

08:49:33 14 Q. The Post-it note company?

08:49:36 15 A. Yes, the Post-it note company, yes.

08:49:38 16 Q. What were they working?

08:49:39 17 A. Well, they were also working on metal mesh. And there
08:49:42 18 was another Japanese company, Fuji Film, was working on
08:49:46 19 that. And 3M specifically was also -- I believe they were
08:49:51 20 working on same copper material. The problem they had was
08:49:55 21 they were printing on two films, just a copy of ITO-type of
08:50:04 22 technology.

08:50:05 23 But with copper, two films, they just don't work
08:50:08 24 because X and Y lines don't align properly. So they were
08:50:11 25 not able to go to production.

08:50:13 1 Q. What about Fuji Film? You told us you knew they were
08:50:16 2 also working on it. What were they working on?

08:50:18 3 A. So Fuji film, another Japanese company, so they were
08:50:24 4 work on metal, but they were working with silver as opposed
08:50:28 5 to copper. But silver had longevity issue, what I will
08:50:36 6 call reliability issue also when you use that for a while.
08:50:39 7 The lines were breaking.

08:50:41 8 Q. Why would the lines break with silver?

08:50:44 9 A. Well, let me put it this way, that the material
08:50:50 10 composition of copper is they are very tightly coupled.
08:50:59 11 The cells or small things that makes the metal, they are
08:51:03 12 very tightly coupled. They are much more strong --
08:51:06 13 stronger together, and silver is a little bit loose, or
08:51:10 14 they were -- it broke easily.

08:51:15 15 Q. Do you remember the time that you were sitting with
08:51:17 16 your co-inventors and you had the idea that led to this
08:51:20 17 invention?

08:51:20 18 A. Yes. That was a very important moment, and so I
08:51:27 19 remember that.

08:51:27 20 I was able to convince my technologist, Mr. Esat
08:51:36 21 Yilmaz, to move his family from U.K. to U.S. so that we can
08:51:42 22 be in same room, same office, and work together to develop
08:51:45 23 this technology.

08:51:46 24 It was right after new year that I took him to my
08:51:53 25 boss, Mr. Steven Laub's office, who is CEO of company, for

08:52:01 1 a pep talk and welcome and so on. That's where we were
08:52:06 2 talking about how we were going to create differentiation,
08:52:09 3 what is different about indium tin oxide versus copper and
08:52:12 4 so on, just like the questions you already asked me.

08:52:15 5 And right there and then I said, you know,
08:52:17 6 customer are pushing me for narrow border, narrow border.
08:52:21 7 I said, you know, we can do zero border, just bend it
08:52:25 8 around.

08:52:25 9 And, of course, Mr. Steven Laub being lawyer and I
08:52:27 10 being technologist and Mr. Esat Yilmaz being a circuit
08:52:32 11 design expert and so on, we pooled our resources and we
08:52:37 12 figured it out, how we can make it happen, how we can bend
08:52:41 13 it, how it will bring value to the industry. So it was
08:52:44 14 great moment.

08:52:45 15 Q. So you had your big idea moment in January 2011?

08:52:49 16 A. That is correct.

08:52:50 17 Q. Wouldn't it have been, you know, pretty obvious to just
08:52:59 18 take what's already flexible and wrap it around a display?

08:53:03 19 A. Well, it looks very simple now that we know it, but
08:53:09 20 there was a lot of work went behind it. My own 35 years of
08:53:14 21 knowledge. It is not easy to just bend it. The lines will
08:53:17 22 break and how do you improve the circuit? How do you
08:53:21 23 improve the quality? And how you continue to have the
08:53:25 24 capacitance which I talked about, when you bend, how much
08:53:28 25 you're going to bend. It was not that easy.

08:53:31 1 Q. So once you and your co-inventors came up with your
08:53:36 2 invention, with your idea, did you go out and market it to
08:53:40 3 your customers?

08:53:40 4 A. Absolutely.

08:53:44 5 MS. FAIR: Mr. Wietholter, can we please have
08:53:47 6 PTX-524?

08:53:52 7 Q. (By Ms. Fair) And, Mr. Yilmaz, [sic] is this one of
08:53:56 8 the presentations that you took to customers to show them
08:53:58 9 your invention?

08:53:59 10 A. Yes. I -- this is one of the -- yes, this is the
08:54:04 11 presentation that I took to customers, yes.

08:54:05 12 Q. Who were you presenting this to?

08:54:07 13 A. Well, any time I develop new technology, I create a
08:54:14 14 partnership with key customers, work back and forth, and it
08:54:18 15 was Nokia -- Nokia, Motorola, Samsung were the key partners
08:54:23 16 at that time.

08:54:24 17 Q. And what was the date of this presentation?

08:54:26 18 A. March '11.

08:54:31 19 MS. FAIR: If we could go to Page 2, please.

08:54:34 20 Q. (By Ms. Fair) At the top, we see FLM Technology
08:54:46 21 Advantages.

08:54:46 22 What is FLM?

08:54:48 23 A. FLM is the name we used to use at that time. That
08:54:56 24 means fine line metal.

08:54:59 25 Q. And can you tell us --

08:55:03 1 MS. FAIR: Mr. Wietholter, if we could see the
08:55:06 2 whole slide, please. Thank you.

08:55:07 3 Q. (By Ms. Fair) Could you tell us what advantages you
08:55:09 4 were touting to your customers that your invention offered?

08:55:13 5 A. Well, keeping indium tin oxide in mind, we wanted to
08:55:17 6 present to them that it is a flexible material, and it is
08:55:22 7 much thinner, and it is lighter, it is faster, and
08:55:28 8 manufacturing advantages, all kinds of advantages that
08:55:32 9 they're all listed here.

08:55:33 10 Q. And we see the slim or no border that it was --

08:55:36 11 A. Yes.

08:55:37 12 Q. -- that your customers were looking for?

08:55:40 13 A. That's where the whole thing started.

08:55:42 14 MS. FAIR: If we could go to Page 3, please,
08:55:44 15 Mr. Wietholter.

08:55:45 16 Q. (By Ms. Fair) At the top here, we see, sleek, edgeless
08:55:50 17 tablet design concept. What did you mean by edgeless?

08:55:53 18 A. Well, again, as I mentioned earlier, is that people
08:55:57 19 were pushing me that, okay, we need to bring the borders
08:56:01 20 narrow and narrow and narrow. And knowing the weakness of
08:56:04 21 indium tin oxide material and its technology, how it was
08:56:07 22 made and so on, we said, we'll give you zero border.

08:56:11 23 Q. How was it that your invention of wrapping around the
08:56:16 24 edges of a display gives you zero borders around the phone
08:56:20 25 or tablet?

08:56:20 1 A. Well, as I mentioned earlier, is that it is the
08:56:24 2 capability of the manufacturing. We print the whole thing,
08:56:30 3 including the lines and signal lines and metal mesh, which
08:56:34 4 is in the middle, everything at one time as opposed to ITO
08:56:38 5 which had connectors. You just cannot bend those, and they
08:56:43 6 will break. Again, I'm talking about at that time. And in
08:56:46 7 our case, it was very easy, so we were able to bend.

08:56:49 8 Q. So bending it around moves all of the lines that run
08:56:52 9 the current to the controller behind the display?

08:56:55 10 A. That is correct.

08:56:57 11 MS. FAIR: Mr. Wietholter, could we go to Page 17,
08:57:01 12 please?

08:57:02 13 Q. (By Ms. Fair) You told us earlier that the lines had
08:57:04 14 to be printed -- I forget -- how much narrower than a human
08:57:10 15 hair?

08:57:10 16 A. About 20 times.

08:57:12 17 Q. And what is the measurements of the lines that you
08:57:14 18 figured out it needed to be?

08:57:16 19 A. You know, when we started, we were at about seven
08:57:21 20 micron wide, but my customers complained that they can see
08:57:25 21 it. So we kept on working and bringing it down narrow and
08:57:29 22 narrow. It was not until five micron that they said, okay,
08:57:34 23 we like it now.

08:57:35 24 Q. And what do we see from this timeline of when five
08:57:39 25 micron was something Atmel had in its manufacturing?

08:57:42 1 A. We were at five micron on -- in around March 2010.

08:57:47 2 Q. You gave this presentation to customers in March 2011.

08:57:50 3 Did you get to start working on a project with one of your
08:57:53 4 customers?

08:57:53 5 A. That is correct.

08:57:55 6 Q. Who was that?

08:57:55 7 A. Nokia.

08:57:57 8 Q. And can you tell us the name of the project?

08:58:00 9 A. Jolle.

08:58:02 10 MS. FAIR: Mr. Wietholter, can we please have
08:58:05 11 PTX-703?

08:58:06 12 Q. (By Ms. Fair) Can you tell us what we're looking at
08:58:12 13 here?

08:58:12 14 A. Yes. In our industry, this is called the price
08:58:17 15 quotation. And that happens when they have looked at my
08:58:23 16 technology, they are comfortable enough, and then they say,
08:58:26 17 okay, let's get a project started on this one. And it was
08:58:30 18 Nokia who named it Jolle.

08:58:32 19 So that was Jolle project we started working, and
08:58:35 20 we -- by that time, we had to have all the mechanical
08:58:38 21 specification from customer to us and back and forth, lots
08:58:41 22 of meeting and drawings and circuit design and all kind of
08:58:46 23 things. And then gave them the pricing.

08:58:48 24 Q. And when you say circuit design and the things that the
08:58:50 25 customer had to evaluate to get to the price quote, you had

08:58:54 1 a 3D model?

08:58:55 2 A. That is correct.

08:58:56 3 Q. When was it that you had this in order and had your
08:58:59 4 price quote provided to Nokia? What's the date here that
08:59:03 5 we see on the price quote?

08:59:04 6 A. It's May 18, 2011.

08:59:07 7 Q. Did you end up making and shipping to them sensors?

08:59:13 8 A. Yes. Once we received this price quote agreement, we
08:59:18 9 worked with them and agreed that, yes, we did manufacture
08:59:22 10 samples and shipped it to them.

08:59:24 11 MS. FAIR: Mr. Wietholter, can we please have
08:59:28 12 PTX-690?

08:59:29 13 Q. (By Ms. Fair) Can you tell us what we're looking at
08:59:32 14 here, Mr. Shaikh?

08:59:34 15 A. Yes. So this is what we call a project tracking
08:59:42 16 spreadsheet in which we list all the projects we were
08:59:46 17 working on, where the projects are, what the status is and
08:59:51 18 so on.

08:59:52 19 So if you look at Row No. 5 -- actually Row No. 3,
08:59:58 20 it shows -- 3A, actually, it shows what is a priority. And
09:00:12 21 you can see that Jolle was a number one priority in my
09:00:13 22 organization to get going.

09:00:14 23 Q. And if we scroll over to Column T, can you tell us when
09:00:26 24 it was that you shipped the samples that you mentioned
09:00:30 25 earlier that you provided to Nokia?

09:00:30 1 A. We shipped about 800 samples to them at their request
09:00:35 2 on July 8th, 2011.

09:00:36 3 Q. And -- I'm sorry.

09:00:38 4 A. July 2011.

09:00:39 5 Q. And these are working samples --

09:00:43 6 A. Yes.

09:00:43 7 Q. -- of touch sensors that you provided to Nokia?

09:00:45 8 A. That is correct.

09:00:46 9 Q. Did Nokia ever incorporate these touch sensors into a
09:00:51 10 product?

09:00:51 11 A. Well, when you say a product which was commercially
09:00:58 12 available in the market, no.

09:00:59 13 Q. What's your sense -- what's your understanding of why
09:01:04 14 that didn't happen?

09:01:06 15 MR. HASLAM: Objection.

09:01:07 16 THE COURT: State your objection.

09:01:08 17 MR. HASLAM: Lacks foundation, calls for hearsay.

09:01:12 18 THE COURT: What's your response, Ms. Fair?

09:01:21 19 MS. FAIR: He has an understanding of being in the
09:01:23 20 industry of what the different customers are and knows his
09:01:28 21 sense -- his understanding of why the project failed. He
09:01:31 22 doesn't know -- you know, what Nokia told him or didn't
09:01:33 23 tell him isn't part of what he's being asked, just his
09:01:37 24 understanding of why the project didn't proceed.

09:01:40 25 THE COURT: Mr. Haslam.

09:01:42 1 MR. HASLAM: I thought the question was, why did
09:01:44 2 Nokia not proceed. He's just going to say why he thinks
09:01:47 3 Nokia didn't proceed, but he's not going to testify about
09:01:50 4 why Nokia actually did.

09:01:51 5 THE COURT: He can answer from what knowledge he
09:01:53 6 has.

09:01:54 7 Restate the question on that basis, please.

09:01:56 8 Q. (By Ms. Fair) Could you tell us based on your
09:01:58 9 knowledge, your understanding of why the project didn't
09:02:00 10 proceed?

09:02:01 11 A. So it is my understanding that they looked at the
09:02:07 12 project, and Nokia was a very conservative company, and
09:02:13 13 they -- this was a big leap for them to create a technology
09:02:20 14 and product which is curved and so on. So I think it did
09:02:26 15 not fit their culture. That's number one.

09:02:30 16 Number two, it is my understanding at that time
09:02:33 17 they were having very tough competition from Samsung, and
09:02:37 18 they were having financial difficulties. So that's my
09:02:41 19 understanding.

09:02:41 20 Q. Did you and your co-inventors seek patent protection
09:02:45 21 for your invention?

09:02:46 22 A. That is correct.

09:02:49 23 MS. FAIR: Mr. Wietholter --

09:02:51 24 Q. (By Ms. Fair) Well, let me ask, why? Why did you seek
09:02:56 25 patent protection?

09:02:56 1 A. Well, you know, all three of us, we were very excited,
09:03:00 2 and I was very excited, and I wanted to have the patent
09:03:05 3 protection because I felt down the road people will need
09:03:10 4 this kind of technology.

09:03:12 5 It was a very common feeling that everybody would
09:03:15 6 like to have a smaller and smaller and smaller phone but
09:03:18 7 bigger and bigger screen. So there's no other way but to
09:03:21 8 wrap around these. And this was for things to come.

09:03:27 9 Q. And were y'all granted a patent?

09:03:29 10 A. Yes.

09:03:30 11 MS. FAIR: Your Honor, may I approach the witness?

09:03:35 12 THE COURT: You may.

09:03:49 13 Q. (By Ms. Fair) Mr. Shaikh, what are you holding in your
09:03:52 14 hands?

09:03:52 15 A. I'm holding my patent.

09:03:58 16 Q. What does having patents like this one mean to you?

09:04:03 17 A. Sorry.

09:04:24 18 I was very passionate to get higher education.
09:04:51 19 Due to financial difficulties, I was not able to do Ph.D.
09:05:03 20 This my Ph.D.

09:05:08 21 Sorry.

09:05:12 22 Q. Did Atmel continue to market your invention?

09:05:15 23 A. Yes.

09:05:16 24 Q. And you at Atmel continued to market your invention?

09:05:20 25 A. Yes.

09:05:22 1 MS. FAIR: Mr. Wietholter, could we please have
09:05:24 2 PTX-650?

09:05:27 3 Q. (By Ms. Fair) Is this another one of the presentations
09:05:29 4 that you were out showing your customers?

09:05:30 5 A. Yes.

09:05:31 6 Q. What is XSense?

09:05:35 7 A. In the very beginning when we started marketing of a
09:05:40 8 product, we said it is fine line metal, and we wanted to
09:05:46 9 have some marketing name, and so we came out with a
09:05:51 10 marketing name, which is called XSense, but basically the
09:05:54 11 same technology.

09:05:57 12 MS. FAIR: And, Mr. Wietholter, if we could go to
09:05:59 13 Page 5, please.

09:06:01 14 Q. (By Ms. Fair) What are these pictures that we're
09:06:05 15 seeing on Page 5?

09:06:07 16 A. You know, it is one thing to say, this is your concept,
09:06:14 17 and you present the concept that you can bend it and so on,
09:06:18 18 but next thing, there's nothing like having a real thing
09:06:22 19 available to show to customer. They can feel and touch and
09:06:27 20 say, that curved sensor does work.

09:06:30 21 So, yes, these are the working samples we had.

09:06:34 22 Q. And this is in 2012 was this particular presentation?

09:06:39 23 A. Yes.

09:06:39 24 Q. Is this what phones looked like in 2012?

09:06:42 25 A. Not at all.

09:06:46 1 Q. What did the displays in 2012 in commercially available
09:06:49 2 phones, what did they look like?

09:06:50 3 A. Well, at that time, they were just very -- just flat
09:06:55 4 phones and with big, wide borders around it.

09:07:00 5 Q. You mentioned earlier that you had showed your March
09:07:03 6 2011 presentation to Samsung. Did you continue to show
09:07:05 7 Samsung presentations like this?

09:07:07 8 A. Yes.

09:07:08 9 Q. Who all at Samsung were you telling about your
09:07:12 10 technology?

09:07:13 11 A. Well, I don't remember the names, but certainly at
09:07:20 12 which time I went over there, I met with different groups.
09:07:25 13 Two groups I remember for sure. One group was making the
09:07:30 14 phones, flat phones, we'll call it at this time. Then
09:07:34 15 there was another department which was working on flexible
09:07:40 16 display. So I used to go to both departments.

09:07:45 17 Q. What was your thought in showing your technology to
09:07:50 18 Samsung?

09:07:50 19 A. Well, you know, at that time, since Samsung was a
09:07:58 20 rising star and it was our biggest customer, so we wanted
09:08:02 21 them to go and adopt our touch sensor also which had all
09:08:08 22 kinds of advantages. So hoping to win their business.

09:08:13 23 Q. So they were one of Atmel's biggest customers for the
09:08:17 24 touch controller side of the business, and you were hoping
09:08:20 25 to complement that offering with the touch sensor?

09:08:26 1 A. That's correct.

09:08:27 2 Q. What was Samsung's reaction when you were over there
09:08:29 3 showing them your technology over the years?

09:08:31 4 A. So I believe I started going there early 2011, and I
09:08:41 5 was working with them for almost two years very
09:08:44 6 aggressively. And every time I went over there,
09:08:50 7 performance was they were just very, very happy.

09:08:53 8 In fact, the very first time I took the sensor
09:08:55 9 with me and so on, we just -- after the meeting we went to
09:09:01 10 the lab. They wanted to verify my claim that I had less
09:09:06 11 than 10 on -- the push, very, very low. And they
09:09:10 12 immediately went to the lab and tested. I was there. They
09:09:13 13 said, oh, you are wrong, it is even better than what you
09:09:17 14 were saying.

09:09:17 15 Q. How long did you continue meeting with Samsung and
09:09:23 16 showing them your technology?

09:09:24 17 A. Well, as I mentioning that I -- for about two years or
09:09:30 18 so, I was working very aggressively with them that it's a
09:09:34 19 great technology and so on. Yes, it was early stages and
09:09:38 20 so on.

09:09:39 21 And I went over there many times. I wanted to win
09:09:42 22 their business. I bent backward. They were big gorilla,
09:09:48 23 you know, anything they said, yes, sir, we will do this,
09:09:51 24 yes, sir, we'll do that. Give us the samples, okay. Oh,
09:09:54 25 well, you know, you have border problem, okay. We'll fix

09:09:57 1 it. Oh, you have, you know, a line with a problem, okay.
09:10:00 2 We'll fix that. Okay. You have reflection problem.
09:10:04 3 Anything they asked us to do, we did. And then also any
09:10:09 4 samples they asked us to make, we did.

09:10:14 5 But after two years, I said, you know, I have to
09:10:17 6 generate the revenue for my company and my people. I had
09:10:21 7 110 or people or so, employees. So I started slowing down
09:10:26 8 and let my sales people handle, and I changed my attention
09:10:29 9 to other customers.

09:10:30 10 Q. Do you remember when the last time was that you -- you
09:10:33 11 said you slowed down, but did you continue to go talk to
09:10:36 12 them about your technology?

09:10:38 13 A. That is correct. Most of the time, I sent my VP of
09:10:42 14 marketing over there.

09:10:43 15 Q. Do you remember when the last time was that you went
09:10:46 16 over to talk to Samsung about the technology? You or
09:10:51 17 someone at Atmel had gone over and talked to them?

09:10:53 18 A. Well, I remember personally going there last time.
09:10:57 19 That was 2016, when I was not part of Atmel at that time.
09:11:01 20 But that was 2016, I believe.

09:11:04 21 Q. Were you aware of what Samsung's goal was with their
09:11:11 22 touch sensors when you were meeting with them over these
09:11:14 23 years?

09:11:14 24 A. Well, to best of my knowledge, I felt that they
09:11:24 25 genuinely wanted to use my touch sensor and they wanted to

09:11:28 1 get more and more information and understanding how do we
09:11:30 2 fix moire, how do we do this. And we provided all the
09:11:35 3 information we could.

09:11:36 4 Q. Did you have an awareness that they were wanting to
09:11:40 5 bring their manufacturing in-house?

09:11:41 6 A. Not at all.

09:11:44 7 Q. Did you start working on a joint development project
09:11:48 8 with them, where you would help them get their
09:11:51 9 manufacturing up to speed?

09:11:52 10 A. Well, while we were -- a different group, which was
09:11:57 11 doing the flexible display technology development, yes, we
09:12:01 12 were working with them, and they asked us that if we can
09:12:07 13 license the technology and they can build it in part of
09:12:12 14 their flexible display. Very understandable.

09:12:15 15 And -- but I remember telling them that, look, you
09:12:18 16 know, in the very beginning, let me supply sensors to you.
09:12:22 17 In the meantime, we'll work with you, and it is very
09:12:25 18 understandable that if you make that part of your
09:12:28 19 manufacturing, your manufacturing cost will also go down.
09:12:32 20 As part of your manufacturing, when you bend it, the radius
09:12:35 21 will be very, very thin because when the thickness goes
09:12:39 22 down, you can bend it more. But I don't think we went to
09:12:46 23 the end to have or sign joint agreement.

09:12:50 24 Q. What ended up happening with Atmel's touch sensor
09:12:54 25 business?

09:12:54 1 A. Well, we were making very good progress with such
09:13:05 2 customers like HP and Dell and so on. We, in fact, had
09:13:10 3 design win with ASUS and so on.

09:13:11 4 I was told later on -- I was told at that time
09:13:14 5 that, well, you know, as much as we wanted to have a bigger
09:13:19 6 revenue and business, a touch controller and touch sensor
09:13:22 7 and one-stop shop, we want customer to come on or to us,
09:13:29 8 but the fundamental technology to make the chemicals and
09:13:34 9 chemistry and plastic and film and metal and all that is
09:13:38 10 very different from the computer chips. So it does not fit
09:13:44 11 together. So we would like to spin it off. So I said,
09:13:49 12 okay, then I started looking for new buyers.

09:13:51 13 Q. So as head of the touch sensor business unit, were you
09:13:55 14 able to find a buyer?

09:13:56 15 A. Yes, I did.

09:13:57 16 Q. Who did you sell to?

09:13:58 17 A. My fierce competitor, Uni-Pixel.

09:14:05 18 Q. What ended up happening -- well, when you sold to
09:14:10 19 Uni-Pixel, did it change the day-to-day operations for you
09:14:16 20 and the engineers?

09:14:17 21 A. Well, as I mentioned, Uni-Pixel was my competition, and
09:14:23 22 they were working on very similar technology. So it was
09:14:27 23 very easy for me to sell it to them because they knew the
09:14:30 24 market, they knew the good and bad and ugly, everything.
09:14:33 25 So it was easy to sell to them.

09:14:35 1 So their own technology was not working. So when
09:14:43 2 they looked at my technology, they said, well, you have
09:14:47 3 customers, you have purchase orders, and you are a
09:14:51 4 manufacturing, you have a factory, you're shipping for
09:14:54 5 revenue and so on.

09:14:57 6 So the second CEO, I recall, Mr. Jeff Hawthorne,
09:15:03 7 he had no fear with it. Their own technology looked very
09:15:05 8 old. He made a business decision. He decided to acquire
09:15:08 9 my business and shut down his own business.

09:15:11 10 Q. When Uni-Pixel acquired the Atmel business, do you know
09:15:14 11 whether they acquired the patents?

09:15:15 12 A. Yes, they licensed the patents.

09:15:19 13 Q. So the patents stayed with Atmel and the business went
09:15:22 14 to Uni-Pixel?

09:15:22 15 A. That is correct. The manufacturing, the employees,
09:15:27 16 factory, everything.

09:15:28 17 Q. What ended up happening with Uni-Pixel? What became of
09:15:33 18 them?

09:15:33 19 A. Well, I will take you back a little bit. When I was
09:15:41 20 Atmel and it was Uni-Pixel, both were working on similar
09:15:46 21 technology. At that time, this -- the executives of
09:15:52 22 Uni-Pixel told their investors that they have technology
09:15:58 23 all figured out, they have orders, and they're ready to
09:16:02 24 ship, lots of volume, the market is big and so on. And
09:16:10 25 that stock kept on growing very fast, and yet they were not

09:16:14 1 able to deliver, especially to their own microchip
09:16:21 2 investors, like Intel and Dell. And I was able to deliver,
09:16:26 3 "I" meaning Atmel, I was able to deliver.

09:16:29 4 And public found out because they were a public
09:16:31 5 company. So their stock crashed and CEO was removed. New
09:16:37 6 CEO came in. And the litigation -- SEC filed a suit
09:16:43 7 against the management. And that kept on going even after
09:16:48 8 they acquired Atmel.

09:16:49 9 Q. Mr. Shaikh, are you getting anything out of this case?

09:16:59 10 A. I'm being paid for my time only.

09:17:02 11 Q. How are you being compensated? How much?

09:17:05 12 A. I'm being paid \$330 an hour for the time I'm spending.

09:17:12 13 Q. Are you here for \$330 an hour? Is that why you came?

09:17:17 14 A. It is less than 5 percent of my income. No.

09:17:27 15 Q. Why is it that you're taking time away from your family
09:17:31 16 to be here?

09:17:31 17 A. This is the reason. I am here to protect my invention.

09:17:43 18 MS. FAIR: Pass the witness.

09:17:44 19 THE COURT: Cross-examination by the Defendants?

09:18:00 20 MR. HASLAM: Your Honor, can I hand the binders to
09:18:03 21 the witness?

09:18:03 22 THE COURT: You have leave to distribute binders.
09:18:33 23 Did opposing counsel get a binder?

09:18:39 24 MR. HASLAM: I apologize.

09:18:52 25 THE COURT: All right. Mr. Haslam, you may

09:18:53 1 proceed when you're ready.

09:18:53 2 CROSS-EXAMINATION

09:18:55 3 BY MR. HASLAM:

09:18:55 4 Q. Mr. Shaikh, you were talking in your direct examination
09:19:02 5 about your visits to Samsung, correct?

09:19:04 6 A. That is correct.

09:19:05 7 Q. And I believe you said -- you were asked a question,
09:19:11 8 did Samsung -- did you know whether Samsung was going to
09:19:16 9 take the project in-house?

09:19:18 10 THE COURT: Mr. Haslam, pull the mic a little
09:19:20 11 closer to you. You're a little taller than Ms. Fair. It
09:19:23 12 probably needs to be readjusted.

09:19:28 13 MR. HASLAM: Sometimes I forget that.

09:19:30 14 Q. (By Mr. Haslam) You were asked on direct examination
09:19:33 15 this question: Did you have an awareness that they were
09:19:38 16 waiting to -- wanting to bring the manufacturing in-house?

09:19:43 17 Your answer was: Not at all.

09:19:46 18 Do you recall that testimony?

09:19:47 19 A. That is correct.

09:19:48 20 Q. Okay. In fact, you knew that Samsung wanted to take
09:19:56 21 the manufacturing of the touch sensor in-house; isn't that
09:19:56 22 correct?

09:20:05 23 A. The cell phone team no flexible display people were
09:20:13 24 working with me at that time.

09:20:14 25 Q. That wasn't -- the display people told you that they

09:20:22 1 wanted to take the manufacturing of the touch sensor
09:20:26 2 in-house; isn't that correct?

09:20:29 3 A. That was very later on.

09:20:30 4 Q. They told you that they wanted to print the touch
09:20:36 5 sensor directly on the display, correct?

09:20:38 6 A. Partially, correct.

09:20:45 7 Q. They told you that they wanted to print the display
09:20:50 8 directly -- to print the touch sensor directly on the
09:20:53 9 display; is that true or not?

09:20:56 10 A. True.

09:21:04 11 Q. So the answer you gave on direct examination wasn't
09:21:09 12 quite right, correct?

09:21:10 13 MS. FAIR: Objection, Your Honor. That
09:21:12 14 mischaracterizes it. He explained that there were two
09:21:15 15 Samsungs. He knew one was --

09:21:16 16 THE COURT: Just a minute, Ms. Fair. I'm going to
09:21:19 17 allow the question. You can address it on redirect, if
09:21:23 18 necessary. We're not going to have a jury speech in front
09:21:26 19 of the jury. We're just going to go on with the next
09:21:29 20 question.

09:21:29 21 Q. (By Mr. Haslam) You want me to reask the question?

09:21:32 22 A. Please.

09:21:33 23 THE COURT: I want you to reask the question.

09:21:35 24 MR. HASLAM: That makes it mandatory.

09:21:38 25 Q. (By Mr. Haslam) Samsung Display, which you knew made

09:21:41 1 the displays that were used in the Samsung Galaxy phones,
09:21:45 2 correct?

09:21:45 3 A. Samsung flexible display wanted to bring manufacturing
09:21:53 4 in-house, to my knowledge.

09:21:55 5 Q. And they told you they wanted to print the touch sensor
09:21:58 6 directly on that display?

09:22:01 7 A. They told me very late that they would be doing that
09:22:07 8 in-house, and they wanted to license my technology.

09:22:10 9 Q. And they did not license your technology, did they?

09:22:15 10 A. That is correct.

09:22:16 11 Q. Because your technology embodied in the '311 patent
09:22:23 12 doesn't -- you print the touch sensor directly on the
09:22:26 13 display, does it?

09:22:28 14 MS. FAIR: Objection, Your Honor. That's expert
09:22:29 15 testimony of what the claims call for and whether or not it
09:22:32 16 requires the metal be printed on -- what surface it's
09:22:36 17 required to be printed on. That's for an expert to opine
09:22:40 18 on. It's comparing the claims to a product.

09:22:42 19 THE COURT: Well, he's the inventor of the '311.
09:22:47 20 He can answer as to what he understands. That's not going
09:22:52 21 to prevent other expert witnesses later in the trial from
09:22:56 22 offering their opinions.

09:22:57 23 I'll overrule your objection.

09:23:01 24 A. If you could please repeat the question.

09:23:04 25 Q. (By Mr. Haslam) Your invention, as claimed in the

09:23:08 1 claim that the jury has to consider, has a flexible touch
09:23:14 2 sensor, correct?

09:23:18 3 A. Correct.

09:23:18 4 Q. And that flexible touch sensor you put on a, as you
09:23:24 5 called it, a substrate or a support, correct?

09:23:27 6 A. Correct.

09:23:27 7 Q. Now, Atmel did not make displays, did it?

09:23:33 8 A. Did not.

09:23:33 9 Q. So you had this separate touch sensor and this separate
09:23:40 10 flexible substrate, and that's what you were selling to
09:23:46 11 different companies?

09:23:48 12 MS. FAIR: Objection, Your Honor. He's trying to
09:23:51 13 compare the specific embodiment that Atmel produced with
09:23:56 14 the Samsung product of how the metal is printed on the
09:23:59 15 substrate. Comparing how Atmel produced the product to how
09:24:06 16 Samsung makes its products is not the proper comparison.
09:24:08 17 The comparison is the claims to the accused products.

09:24:11 18 THE COURT: Overruled. This is the inventor. He
09:24:18 19 can answer questions as to how he understands his invention
09:24:22 20 worked. Overruled.

09:24:24 21 MR. HASLAM: Could we have Exhibit 3, Claim 7, put
09:24:28 22 up on the screen?

09:24:30 23 Q. (By Mr. Haslam) Now, do you know that this is the
09:24:41 24 claim that is being asserted in this case?

09:24:43 25 A. That is correct.

09:24:44 1 Q. Okay. And this is the claimed invention that this jury
09:24:49 2 is going to have to match to the accused Samsung products,
09:24:54 3 correct?

09:24:54 4 A. Understand.

09:24:56 5 Q. So let's talk about what the elements of the claim are.

09:25:01 6 The first thing is a substantially flexible
09:25:06 7 substrate, correct?

09:25:08 8 A. Correct.

09:25:08 9 Q. And you were using a plastic substrate called PET?

09:25:12 10 A. That is correct.

09:25:12 11 Q. The next element is a touch sensor, and I'm just going
09:25:19 12 to go through some of it to highlight it for the jury. If
09:25:24 13 you think you need to talk about more of what's in the
09:25:27 14 claim, feel free to do so.

09:25:28 15 The touch sensor was on the flexibly -- the
09:25:33 16 substantially flexible substrate, correct?

09:25:35 17 A. That is correct.

09:25:37 18 Q. And the touch sensor had a bunch of drive and sense
09:25:44 19 electrodes. Those are the wires that you were talking
09:25:47 20 about, correct?

09:25:47 21 A. That is correct.

09:25:49 22 Q. And the flexible touch sensor was configured so it
09:25:54 23 would bend with the flexible display, correct?

09:25:58 24 A. Correct.

09:25:58 25 Q. You then require -- required that the flexible

09:26:05 1 material, the copper lines that you were describing, had to
09:26:10 2 form a mesh grid, correct?

09:26:13 3 A. That is correct.

09:26:13 4 Q. And the substantially flexible substrate and the touch
09:26:22 5 sensor are configured to wrap around one or more edges of a
09:26:26 6 display, correct?

09:26:27 7 A. That is correct.

09:26:28 8 Q. The claim does not require a display, does it?

09:26:33 9 A. Touch sensor has to be used with a display. That was
09:26:45 10 the main application.

09:26:46 11 Q. The claim does not require that there be a display;
09:26:51 12 isn't that right? It only requires that the flexible touch
09:26:57 13 sensor and the flexible substrate themselves be configured
09:27:05 14 to bend around a display?

09:27:07 15 A. That is correct.

09:27:07 16 Q. And then the last element is you have the chip, the
09:27:12 17 computer chip, correct?

09:27:13 18 A. That is correct.

09:27:14 19 Q. And because Atmel didn't sell displays, this claim
09:27:22 20 covered your Atmel embodiment of the touch sensor, which
09:27:27 21 was a touch sensor that was -- had copper drive and sense
09:27:34 22 electrodes that was put on this plastic PET substrate,
09:27:37 23 correct?

09:27:37 24 A. That is correct.

09:27:39 25 Q. And that was your invention?

09:27:41 1 A. Correct.

09:27:42 2 Q. So what -- you never considered -- you never at Atmel
09:27:56 3 attempted to print the touch sensor directly on the
09:27:59 4 display, did you?

09:28:00 5 MS. FAIR: Objection, Your Honor. Whether or not
09:28:01 6 he tried to make the embodiment --

09:28:04 7 THE COURT: Overruled, counsel. You're not going
09:28:05 8 to make a jury speech in lieu of an objection. If you have
09:28:10 9 a legal basis to object, give me that legal basis. Don't
09:28:10 10 start with a speaking argument. Now, if you have a legal
09:28:13 11 objection to that question, give it to me.

09:28:15 12 MS. FAIR: It's an improper comparison, and it's
09:28:17 13 expert testimony. It calls for expert testimony. This is
09:28:19 14 a fact witness.

09:28:20 15 THE COURT: Overruled. He asked this inventor
09:28:23 16 what the inventor did with his invention. He has personal
09:28:27 17 knowledge of that. He's entitled to testify to it. Your
09:28:30 18 objection is overruled.

09:28:33 19 Q. (By Mr. Haslam) Did you ever try to print a touch
09:28:36 20 sensor directly on a display?

09:28:38 21 A. No.

09:28:38 22 Q. And you couldn't have tried that because you didn't
09:28:43 23 make displays at Atmel, correct?

09:28:44 24 A. That is correct.

09:28:49 25 Q. So when Samsung Display told you that they were going

09:28:53 1 to try to print the touch sensor directly on the display,
09:29:01 2 you knew that that was something you hadn't tried, correct?
09:29:04 3 A. That is correct.
09:29:05 4 Q. And you knew that your invention embodied in Claim 7
09:29:12 5 didn't address whether or not the touch sensor and the
09:29:16 6 substrate that were separately sold could somehow be
09:29:21 7 printed directly on the display, correct?
09:29:26 8 A. As we discussed, and I mentioned earlier, we were --
09:29:34 9 Atmel was not in display, so we could not print on a
09:29:38 10 display. But that's where we were looking for partnership
09:29:44 11 with Samsung, flexible group to work together.
09:29:47 12 Q. Well, the Samsung Display is the one that came up with
09:29:51 13 the idea that they wanted to print the touch sensor
09:29:55 14 directly on the display, correct?
09:30:01 15 A. I partially agree.
09:30:02 16 Q. And you partially disagree?
09:30:04 17 A. Yes.
09:30:04 18 Q. Do you know that Samsung had documents before your
09:30:14 19 invention that described an integrated touch sensor where
09:30:19 20 the touch sensor was printed directly on the display?
09:30:22 21 A. Using copper lines, no.
09:30:30 22 Q. Are you aware of documentation that Samsung, before the
09:30:38 23 '311 invention, had --
09:30:40 24 A. No.
09:30:40 25 Q. -- had planned or had developed the ability to print

09:30:47 1 touch sensors directly on displays?

09:30:50 2 A. No, I don't.

09:30:50 3 Q. Would it surprise you if there were such documents?

09:31:00 4 A. Yes.

09:31:02 5 Q. Now, you recognized when Samsung told you that they
09:31:11 6 wanted to print the touch sensor directly on the display,
09:31:17 7 that that would have certain advantages, correct?

09:31:23 8 A. Yes.

09:31:23 9 Q. And what you recognized is it would eliminate a
09:31:28 10 supply -- another supply chain, correct?

09:31:29 11 A. In addition to other benefits, yes.

09:31:31 12 Q. And by eliminating another supply chain meant that
09:31:36 13 Samsung wouldn't have to buy external touch sensors, such
09:31:40 14 as Atmel's or Alps, which is the one they were using, but
09:31:45 15 instead they could take that all in-house, correct, so
09:31:51 16 simplify the supply chain?

09:31:53 17 A. Correct.

09:31:53 18 Q. You also recognized that when Samsung told you --
09:32:00 19 Samsung Display told you they were going to print directly
09:32:02 20 on the display, that that would eliminate having to put
09:32:08 21 another layer on top of the display, the touch sensor and
09:32:11 22 the substrate that Atmel or Alps or other such companies
09:32:15 23 were selling, correct?

09:32:16 24 A. Correct.

09:32:18 25 Q. And you knew that if Samsung could do that, it would

09:32:23 1 make the display narrower, very, very narrow, and it would
09:32:29 2 eliminate the glue, which was necessary to glue the Atmel
09:32:34 3 type of external sensor, which was the substrate and the
09:32:39 4 touch sensor that Samsung would have bought and then glued
09:32:43 5 on the display, correct?

09:32:44 6 A. Correct.

09:32:45 7 Q. While I'm at it, let me just ask you a few questions
09:32:55 8 about pricing.

09:32:56 9 In 2012, right, when you were out marketing the
09:33:00 10 Atmel products, your competitor was ITO, correct?

09:33:08 11 A. That is correct.

09:33:09 12 Q. And in order to be competitive with the ITO touch
09:33:13 13 sensors that were out there, your CEO told you that you had
09:33:17 14 to price your product at a dollar per inch, correct?

09:33:22 15 A. Correct.

09:33:23 16 Q. And so if it was a four-inch screen, the touch sensor
09:33:26 17 would be \$4, correct?

09:33:29 18 A. Correct.

09:33:30 19 Q. And that included not only the touch sensor on the --
09:33:34 20 on the flexible substrate, it also included the controller,
09:33:40 21 correct?

09:33:40 22 A. No.

09:33:40 23 Q. At one point -- anyway. I withdraw that.

09:33:54 24 I think you testified before, in your deposition,
09:34:00 25 that by 2015 or 2016, you thought you could make a profit

09:34:05 1 selling your sensor at \$1 per inch, correct?

09:34:12 2 A. Correct.

09:34:12 3 Q. And was ITO at that time still around \$1 an inch?

09:34:17 4 A. I don't remember exactly, but I knew that I was
09:34:26 5 price-competitive.

09:34:28 6 Q. So companies that wanted to use ITO would buy touch
09:34:33 7 sensors for about \$1 an inch or they could buy, for
09:34:39 8 example, your product for about \$1 an inch?

09:34:42 9 A. Correct.

09:34:42 10 Q. So on a phone with a six-inch screen, that would be
09:34:45 11 about \$6, correct?

09:34:48 12 A. Correct.

09:34:48 13 Q. Now, I think you said it in your testimony -- direct
09:34:58 14 testimony, in 2012, ITO was brittle and they couldn't bend,
09:35:06 15 correct?

09:35:06 16 A. Correct.

09:35:06 17 Q. At some point in time, were there products with ITO
09:35:10 18 that did bend?

09:35:12 19 A. To my knowledge later on, not at that time.

09:35:18 20 Q. When later on?

09:35:19 21 A. The first product I'm familiar with, S7 Edge.

09:35:29 22 Q. And that was a Samsung product?

09:35:31 23 A. That is correct.

09:35:32 24 Q. That used ITO?

09:35:34 25 A. Correct.

09:35:35 1 Q. Now, you said you were involved in the sale of the

09:35:43 2 Atmel touch sensor business at Uni-Pixel?

09:35:46 3 A. That is correct.

09:35:47 4 Q. And you negotiated that on behalf of Atmel?

09:35:51 5 A. That is correct.

09:35:53 6 Q. And you told Mr. Dell, correct, that the principal

09:36:03 7 value in the patent portfolio that went to Uni-Pixel was

09:36:09 8 the '311 patent, correct?

09:36:15 9 A. Well, there were a lot of other patents, too.

09:36:21 10 Q. Was the '311 patent fundamental to the Uni-Pixel deal?

09:36:32 11 A. Our focus was manufacturing first and then other

09:36:40 12 patents.

09:36:41 13 Q. So you were more concerned with the equipment and the

09:36:46 14 employees and the ability to manufacture the Uni-Pixel

09:36:53 15 deal?

09:36:53 16 A. At that time, yes.

09:36:54 17 Q. So did you tell Mr. Dell that the technology covered by

09:36:58 18 the '311 patent was fundamental to the importance of the

09:37:03 19 license agreement being executed and that if that patent or

09:37:09 20 its application at the time were not to have been included,

09:37:12 21 that he, you, would not have executed the license? Is that

09:37:19 22 a correct statement?

09:37:26 23 A. Could you please repeat the question?

09:37:29 24 Q. Yes.

09:37:30 25 Based on my discussions with Mr. Shaikh, I

09:37:33 1 understand it was his position that the technology covered
09:37:36 2 by the '311 patent was fundamental to the importance of the
09:37:41 3 license agreement being executed and that if that patent or
09:37:45 4 its application at the time were not to have been included,
09:37:50 5 that he would not have executed the license.

09:37:54 6 THE COURT: Is that a question? You're reading
09:37:56 7 from Mr. Dell's deposition?

09:37:57 8 MR. HASLAM: Yes. I'm reading from his report and
09:38:00 9 asking if he had that discussion with Mr. Dell.

09:38:03 10 THE COURT: All I heard is you read a statement
09:38:05 11 from his report. Let's put it in the form of a question.

09:38:08 12 Q. (By Mr. Haslam) Did you tell Mr. Dell what I just read
09:38:11 13 to you?

09:38:11 14 A. I don't remember.

09:38:16 15 Q. At the time of the Uni-Pixel deal, which was March
09:38:22 16 2015, the '311 patent didn't exist; isn't that right?

09:38:30 17 A. We had filed for this thing.

09:38:32 18 Q. The '311 patent didn't exist at the time of the
09:38:37 19 Uni-Pixel transaction, did it?

09:38:39 20 A. It was awarded after.

09:38:47 21 Q. It was awarded in 2016.

09:38:49 22 A. Correct.

09:38:50 23 Q. And at the time of the Uni-Pixel deal, for the fourth
09:38:53 24 time, the Patent Office had rejected the claims that Atmel
09:38:56 25 was presenting and trying to patent; isn't that true?

09:39:00 1 A. I am not aware of that.

09:39:04 2 MR. HASLAM: Your Honor, the issue we talked about
09:39:07 3 yesterday, I'd like to go to the prosecution history.

09:39:12 4 MS. FAIR: I don't know that this is a discussion
09:39:13 5 that we should have in front of the jury, Your Honor, given
09:39:16 6 the Court's instruction earlier.

09:39:17 7 THE COURT: I agree.

09:39:18 8 MS. FAIR: I hate to interrupt but --

09:39:21 9 THE COURT: That's all right.

09:39:21 10 Ladies and gentlemen of the jury, I've got a
09:39:23 11 matter I need to take up with counsel outside of your
09:39:25 12 presence. In the old days pre-pandemic, I'd bring them up
09:39:30 13 here to the side of the bench, and we would talk about it
09:39:33 14 quietly, and you could stay where you are. I can't do that
09:39:37 15 today.

09:39:37 16 So I'm going to ask you to retire to the jury
09:39:39 17 room. I'll be as brief with them as I can be and have you
09:39:42 18 back in here shortly to continue. This is one of those
09:39:45 19 opportunities where you can simply just close and leave
09:39:48 20 your notebooks in your chairs, and we'll have you back here
09:39:50 21 shortly.

09:39:51 22 The jury is excused to the jury room at this time.

09:39:53 23 COURT SECURITY OFFICER: All rise.

09:39:54 24 (Jury out.)

09:39:54 25 THE COURT: Be seated, please.

09:40:24 1 All right. Mr. Haslam, what's your request? You
09:40:30 2 want to use prosecution history by way of --

09:40:34 3 MR. HASLAM: I want to show the claim --

09:40:36 4 THE COURT: Let me ask my question before you
09:40:40 5 start talking.

09:40:41 6 MR. HASLAM: I'm sorry. I apologize, Your Honor.
09:40:43 7 I know I'm not supposed to do that.

09:40:43 8 THE COURT: Well, It's impossible, even as
09:40:46 9 excellent a court reporter as I have, to write two people
09:40:48 10 speaking at the same time.

09:40:49 11 So, as I understand it, you want to refer to
09:40:52 12 prosecution history as a means to impeach this witness in
09:40:56 13 light of his last answer?

09:40:57 14 MR. HASLAM: Yes.

09:40:57 15 THE COURT: Specifically, what in the prosecution
09:41:00 16 history are you talking about?

09:41:02 17 MR. HASLAM: I want to show the claim as it
09:41:04 18 existed in March of 2015 and the rejection before -- after
09:41:14 19 that, just that.

09:41:20 20 THE COURT: What's the response from Plaintiff?

09:41:22 21 MS. FAIR: Two things, Your Honor.

09:41:23 22 First, that's not an impeachment. It's not
09:41:26 23 inconsistent with what this witness has said. He said he
09:41:29 24 doesn't remember. He doesn't have a foundation.

09:41:31 25 And the second is this witness was not personally

09:41:34 1 involved in the claims.

09:41:35 2 As you know, that's a process that happens between
09:41:38 3 the prosecuting attorneys and the examiners at the Patent
09:41:41 4 Office. And to confront the inventor in front of the jury
09:41:44 5 with the claims that were rejected, is incredibly
09:41:46 6 prejudicial.

09:41:47 7 THE COURT: Well, in light of the fact that the
09:41:51 8 witness told the jury in response to your question,
09:41:54 9 Mr. Haslam, that he wasn't aware, I do agree with
09:41:58 10 Plaintiff's counsel. It would be improper impeachment for
09:42:02 11 you to show him prosecution history that he was not
09:42:04 12 involved with.

09:42:10 13 Now, we can take up at a later date what's
09:42:13 14 appropriate for your case-in-chief when we get to it, but
09:42:16 15 at this point I'll order -- or find that it's improper
09:42:19 16 impeachment.

09:42:19 17 MR. HASLAM: Okay. Thank you, Your Honor.

09:42:20 18 THE COURT: Let's bring the jury back in.

09:42:21 19 We'll charge this time to the Defendant.

09:44:00 20 COURT SECURITY OFFICER: All rise.

09:44:04 21 (Jury in.)

09:44:04 22 THE COURT: Please be seated.

09:44:27 23 Thank you for your indulgence, ladies and
09:44:31 24 gentlemen.

09:44:31 25 Mr. Haslam, ask your next question.

09:44:35 1 MR. HASLAM: Can we go back to Exhibit 3 of the
09:44:41 2 '311 patent? Can we put up Figure 7?

09:44:45 3 Q. (By Mr. Haslam) Now, this is a drawing that's in the
09:44:49 4 patent, and this depicts what we -- part of what we saw in
09:44:56 5 Claim 7, correct, the touch sensor and the substrate?

09:45:00 6 A. Correct.

09:45:02 7 MS. FAIR: Objection, Your Honor. I don't want to
09:45:04 8 have to interrupt again and excuse the jury, but I need to
09:45:09 9 make arguments about this that I know the Court doesn't
09:45:12 10 want us to do in open court.

09:45:14 11 Normally, I would just come up there, but that's
09:45:16 12 why I felt compelled to make the argument without
09:45:19 13 disrupting. But may we have another bench conference?

09:45:29 14 MR. HASLAM: It's an exhibit.

09:45:30 15 THE COURT: I understand that.

09:45:31 16 MR. HASLAM: It's in the jury's binder.

09:45:32 17 THE COURT: I understand that, counsel. She's
09:45:34 18 talking to me. She's not talking to you.

09:45:38 19 All right. Ladies and gentlemen, I'm going to ask
09:45:41 20 you to retire to the jury room one more time. I promise
09:45:43 21 you, we will get to the bottom of this, and you won't have
09:45:46 22 to go back and forth again.

09:45:47 23 The jury is excused to the jury room.

09:45:51 24 COURT SECURITY OFFICER: All rise.

09:45:52 25 (Jury out.)

09:46:18 1 THE COURT: Be seated.

09:46:23 2 Mr. Haslam, when opposing counsel is speaking to
09:46:27 3 the Court, it is not incumbent upon you to respond for the
09:46:31 4 Court to opposing counsel. If I want your help in
09:46:34 5 answering her, I will ask for it. Don't do that again.

09:46:38 6 MR. HASLAM: I will not.

09:46:38 7 THE COURT: It shows disrespect for the Court, and
09:46:41 8 it's not to be tolerated.

09:46:43 9 MR. HASLAM: I apologize.

09:46:43 10 THE COURT: And, Ms. Fair, I don't know why we
09:46:47 11 didn't have whatever it is you're about to tell me
09:46:49 12 discussed and out on the table while I had the jury out
09:46:52 13 just moments ago.

09:46:53 14 You and I all know we've got an elderly gentleman
09:46:57 15 with a cane. It's hard for him to come and go from the
09:47:00 16 jury box. And to send them back out seconds after they
09:47:03 17 came back in, is burdensome on this jury, and I'm not going
09:47:07 18 to countenance that. And there's no reason whatever it is
09:47:10 19 you're going to tell me shouldn't have been told to me
09:47:12 20 while they were out the first time.

09:47:14 21 So we're going to get to the bottom of this, and
09:47:17 22 we're going to move on.

09:47:18 23 This exhibit is an admitted exhibit in the case.
09:47:20 24 If he wants to question this witness as to his personal
09:47:23 25 knowledge about this patent, he's entitled to do that on

09:47:26 1 cross-examination. So tell me what your problem is.

09:47:30 2 MS. FAIR: My issue, Your Honor, is what I fear
09:47:33 3 this is going to -- and I apologize for not handling this
09:47:36 4 while the jury was out before. I didn't know we were going
09:47:39 5 to go here.

09:47:40 6 I have no problem with them showing the jury an
09:47:42 7 admitted exhibit. The problem is when you pull up a
09:47:45 8 specific figure of the patent -- and this is where we know
09:47:49 9 this case is going -- their display is more curved than
09:47:54 10 Figure 7 of the patent.

09:47:56 11 It's an issue that came up in claim construction.
09:47:59 12 It's -- what they're going to do is take the picture, the
09:48:03 13 Figure 7 from the patent, with the more pronounced corners
09:48:08 14 of the display and then show what their display is, which
09:48:12 15 is curved, not the same pronounced 90-degree angle, and try
09:48:15 16 and make an argument to this jury that there's not more --
09:48:19 17 more than one surface, multiple surfaces that the touch
09:48:22 18 sensor is wrapping around.

09:48:23 19 And what that is doing is comparing the preferred
09:48:27 20 embodiment that is depicted in the patent to an accused
09:48:30 21 product, which is absolutely improper.

09:48:32 22 And so going into this specific figure with the
09:48:36 23 inventor, while there's not normally an issue with talking
09:48:39 24 about content of a pre-admitted exhibit, the only reason
09:48:43 25 they're going to be doing it is for a prejudicial argument

09:48:45 1 that's improper.

09:48:46 2 THE COURT: All right. Ms. Fair, first of all,
09:48:48 3 it's an admitted exhibit, and every page of it is an
09:48:52 4 admitted exhibit. And I can't tie the Defendants' hands
09:48:57 5 from asking this witness about a patent-in-suit that's in
09:48:59 6 evidence.

09:49:00 7 You can address this on cross -- on redirect.
09:49:03 8 You've got an expert witness who's coming on shortly
09:49:06 9 hereafter, who I expect whatever Mr. Haslam alludes to is
09:49:09 10 going to be able to address it and correct it within the
09:49:12 11 confines of their report.

09:49:15 12 You may be afraid that's where the Defendant is
09:49:19 13 going. I can't keep the Defendant from going there with
09:49:23 14 this exhibit and this witness on the witness stand without
09:49:26 15 putting a thumb on the scales I'm not prepared to do.

09:49:29 16 So your objection is overruled.

09:49:34 17 Now, is there anything else about the continued
09:49:36 18 cross-examination and redirect of this witness that I need
09:49:39 19 to know about before I bring the jury back in?

09:49:43 20 Are you aware of anything else, Ms. Fair?

09:49:45 21 MS. FAIR: I'm not at this time, Your Honor.

09:49:47 22 THE COURT: Okay. Mr. Haslam?

09:49:50 23 MR. HASLAM: I'm not aware, and I don't believe
09:49:52 24 there will be anything.

09:49:53 25 THE COURT: Is there any reason I shouldn't bring

09:49:55 1 the jury back in?

09:49:58 2 And while the jury is out, I want to say one other
09:50:01 3 thing. There was a cell phone that went off in the middle
09:50:04 4 of this trial and nobody would fess up to it, and that's
09:50:06 5 fine.

09:50:07 6 If I hear another device interrupt this trial, I
09:50:10 7 will exclude every electronic device from everybody in this
09:50:17 8 courtroom that's inside the bar and outside the bar in the
09:50:19 9 gallery. So don't let it happen again.

09:50:23 10 It's bothersome enough that it happens. Most
09:50:26 11 everybody in this courtroom is either an officer of the
09:50:28 12 Court or they're somebody that works for a recognized law
09:50:33 13 firm. And when I ask a question and nobody will even admit
09:50:35 14 what I've clearly heard, it causes the Court a great bit of
09:50:40 15 consternation.

09:50:41 16 So the only thing I can tell you is, if it happens
09:50:45 17 again, everybody in this courtroom is going to lose their
09:50:48 18 devices. All right?

09:50:49 19 Anything else before I bring the jury back?

09:50:54 20 Let's bring the jury back, Mr. Johnston.

09:51:23 21 COURT SECURITY OFFICER: All rise.

09:51:24 22 (Jury in.)

09:51:24 23 THE COURT: Please be seated, ladies and
09:51:34 24 gentlemen.

09:51:34 25 Members of the jury, thank you for your

09:51:39 1 cooperation. Trials are not an exact science. Sometimes I
09:51:43 2 have to take things up outside your presence. Thank you
09:51:45 3 for your understanding.

09:51:46 4 Let's proceed with the Defendants'
09:51:48 5 cross-examination.

09:51:50 6 Q. (By Mr. Haslam) Looking again at Figure 7, the --
09:51:53 7 you'll see three separate structures, correct?

09:51:57 8 A. Correct.

09:51:58 9 Q. And the one that is labeled 601 is the cover or the --
09:52:04 10 would be a glass cover typically, correct?

09:52:07 11 A. Correct.

09:52:07 12 Q. The one that is labeled 602 depicts the flexible
09:52:13 13 substrate, correct?

09:52:14 14 A. Correct.

09:52:15 15 Q. And then there's a number on the right-hand side, 612,
09:52:21 16 which appears to be pointing up to perhaps some line
09:52:26 17 that's -- light line that's going across the substrate?

09:52:31 18 A. I see that. I don't remember it, yes.

09:52:35 19 Q. Yeah. And that is depicting the touch sensor on the
09:52:38 20 substrate -- on the substrate, correct?

09:52:41 21 A. Correct.

09:52:41 22 Q. And then down below, 603 is the display, correct?

09:52:47 23 A. Correct.

09:52:48 24 Q. And if we go back up to the cover on the right-hand
09:52:52 25 side, you've got, you know, in the front what looks like a

09:53:00 1 light-colored oval shape, and if we go back along, there's
09:53:04 2 two oval shapes and then what looks like a series of bars
09:53:08 3 that get -- go from small to big; is that correct?

09:53:11 4 A. Volume control, yes.

09:53:13 5 Q. Yeah. So this depicts being able to put the touch
09:53:18 6 sensor on the side of the phone so you could do the volume
09:53:21 7 control using a touch sensor rather than a mechanical
09:53:26 8 button, correct?

09:53:27 9 A. Correct.

09:53:27 10 Q. And in this particular picture, this example -- this is
09:53:35 11 just an example, correct?

09:53:36 12 A. Correct.

09:53:37 13 Q. The substrate and the touch sensor have a flat part,
09:53:48 14 the top, correct?

09:53:49 15 A. Okay.

09:53:50 16 Q. And then the substrate and the touch sensor go over
09:53:58 17 something that's close to a right angle and go down the --
09:54:02 18 continue down the side, correct?

09:54:03 19 A. Understand.

09:54:04 20 Q. And then the display would have a display on the top
09:54:10 21 and then a display on the side as depicted in this picture,
09:54:13 22 correct?

09:54:13 23 A. Understand.

09:54:14 24 Q. And this is just an example, correct?

09:54:17 25 A. Correct.

09:54:17 1 Q. And the touch sensor and the substrate, as depicted
09:54:25 2 here, are configured to wrap around the edge of the
09:54:29 3 display, correct?

09:54:29 4 A. Correct.

09:54:31 5 Q. And you've labeled in here 613. That's the edge
09:54:37 6 between the top of the display and the side of the display?

09:54:42 7 A. Understand.

09:54:42 8 Q. Thank you.

09:54:45 9 MR. HASLAM: I have no further questions.

09:54:47 10 THE COURT: You pass the witness, counsel?

09:54:48 11 MR. HASLAM: I pass the witness.

09:54:49 12 THE COURT: Is there redirect from the Plaintiff?

09:54:51 13 MS. FAIR: Yes, Your Honor.

09:54:52 14 THE COURT: All right. Let's proceed with
09:54:53 15 redirect examination.

09:55:16 16 Please proceed.

09:55:17 17 MS. FAIR: Thank you, Your Honor.

09:55:17 18 REDIRECT EXAMINATION

09:55:18 19 BY MS. FAIR:

09:55:18 20 Q. Mr. Shaikh --

09:55:27 21 MS. FAIR: Mr. Wietholter, can we pull up PTX-003,
09:55:32 22 please, and go to Claim 7? Sorry, Claim 7. So it should
09:55:56 23 be, I think, on the last page.

09:56:32 24 THE COURT: You can use the document camera.

09:56:35 25 MS. FAIR: Yes, Your Honor, if I may.

09:56:47 1 I'm sorry, I threw my graphics team a little bit
09:56:51 2 of a curve ball.

09:57:08 3 Q. (By Ms. Fair) Mr. Shaikh, in Claim 7, is there
09:57:20 4 anywhere there where it says PET substrate?

09:57:28 5 A. No.

09:57:28 6 Q. Is there anywhere there where it says copper is
09:57:33 7 required?

09:57:33 8 A. No.

09:57:34 9 Q. Do you have -- well, let me --

09:57:42 10 MS. FAIR: Mr. Wietholter, can we go to PTX-650?

09:57:52 11 Ms. Brunson, if we may switch the display? I'm
09:57:56 12 sorry.

09:57:57 13 Page 5, please.

09:58:02 14 Q. (By Ms. Fair) Is this another example of what you were
09:58:04 15 showing Samsung, in the 2012 time period, of what your
09:58:09 16 technology was?

09:58:10 17 A. That is correct.

09:58:11 18 Q. And when you were showing them this technology in 2012,
09:58:18 19 did you have access to their confidential information?

09:58:22 20 A. No.

09:58:22 21 Q. Do you have access to their confidential information
09:58:26 22 today to know how they're making their touch sensors?

09:58:31 23 A. No.

09:58:31 24 Q. Have you spent hours of time looking at the claim and
09:58:36 25 the confidential information of Samsung to know whether or

09:58:40 1 not they're using your invention?

09:58:41 2 A. No.

09:58:42 3 Q. But when you were showing this to them in 2012, 2013,
09:58:48 4 2014, 2015, 2016, were you concerned about showing them
09:58:55 5 your technology?

09:58:56 6 A. Yes.

09:58:58 7 Q. Why?

09:58:58 8 A. Because it was a novel idea, and we truly believed in
09:59:08 9 2011 that this thing would happen, things to come. And,
09:59:13 10 yes, I was concerned that this idea would leak out.

09:59:19 11 MS. FAIR: I pass the witness, Your Honor.

09:59:20 12 THE COURT: Further cross-examination?

09:59:28 13 MR. HASLAM: No, Your -- no, Your Honor.

09:59:32 14 THE COURT: All right. Mr. Shaikh, you may step
09:59:35 15 down, sir.

09:59:35 16 MS. FAIR: Your Honor, may this witness be
09:59:38 17 excused?

09:59:38 18 THE COURT: Is there any objection from Defendant?

09:59:40 19 MR. HASLAM: No, Your Honor.

09:59:41 20 THE COURT: Mr. Shaikh, you're excused, sir. That
09:59:43 21 means you're welcome to stay with us, but you're also free
09:59:47 22 to leave. It's your choice.

09:59:49 23 THE WITNESS: Thank you.

09:59:50 24 THE COURT: Thank you.

09:59:51 25 Am I correct, counsel, the next witness is a

09:59:54 1 witness by deposition?

09:59:55 2 MR. MIRZAIE: Correct, Your Honor.

09:59:56 3 THE COURT: And it's a lengthy deposition?

09:59:59 4 MR. MIRZAIE: It is, Your Honor.

10:00:00 5 THE COURT: Well, ladies and gentlemen of the
10:00:02 6 jury, even though you've had a couple trips to the jury
10:00:04 7 room so far, they haven't been very long, and none of the
10:00:07 8 rest of us have been out of the courtroom, so we're going
10:00:10 9 to take a short recess before we start this lengthy
10:00:12 10 deposition. And I expect to be back in about 10 or 12
10:00:15 11 minutes, and we'll continue.

10:00:17 12 With that, the jury is excused for recess at this
10:00:19 13 time.

10:00:19 14 COURT SECURITY OFFICER: All rise.

10:00:24 15 THE COURT: Remember to follow all the
10:00:26 16 instructions I've given you.

10:00:28 17 (Jury out.)

10:00:29 18 THE COURT: The Court stands in recess.

10:00:54 19 (Recess.)

10:24:50 20 (Jury out.)

10:24:53 21 COURT SECURITY OFFICER: All rise.

10:24:53 22 THE COURT: Be seated, please.

10:24:54 23 Counsel, before I bring in the jury, I want to
10:25:01 24 visit with you briefly about demonstratives for use with
10:25:07 25 Mr. Credelle that were objected to overnight that we did

10:25:11 1 not have an opportunity to talk about before we started
10:25:14 2 today's portion of the trial.

10:25:17 3 Over the recess, I finished my review of your
10:25:20 4 objections and those demonstratives, and I'm going to give
10:25:24 5 you my rulings. And over the course of this deposition,
10:25:31 6 any adjustments to these demonstratives can be made so that
10:25:34 7 we should not have a delay in proceeding directly with
10:25:37 8 Mr. Credelle after the deposition witness is complete.

10:25:40 9 On Demonstrative -- and these are page numbers in
10:25:47 10 the bottom right-hand corner for reference.

10:25:50 11 On Demonstrative 166, which has a reference to
10:25:54 12 PTX-135 on it, the heading of this slide now reads:
10:26:05 13 Samsung phone Include Emitting Layer and Upper Electrode
10:26:11 14 Over Transistors. That heading needs to be modified to
10:26:15 15 say: Emitting Layer and Upper Electrode Over Transistors.

10:26:20 16 The photograph in the left-hand margin of
10:26:24 17 Samsung's cell phone needs to be deleted.

10:26:27 18 Otherwise, the remainder of that slide is
10:26:29 19 acceptable as a demonstrative.

10:26:30 20 Then on slide, numbered in the bottom right-hand
10:26:37 21 corner 205, the identifier of Samsung Galaxy S8 in orange
10:26:47 22 on top of the greenish block should be deleted. The same
10:26:54 23 thing on 207. And the same thing on 209 where it
10:26:59 24 references a Samsung gallery -- Galaxy, I'm sorry, Galaxy
10:27:04 25 Note 5.

10:27:05 1 Those orange headings should be deleted.

10:27:11 2 Otherwise, those three slides are permissible as
10:27:14 3 demonstratives.

10:27:16 4 Considering the remaining objections and those
10:27:19 5 slides that have been resolved where objection has been
10:27:21 6 resolved, the remainder of the demonstratives for use with
10:27:24 7 Mr. Credelle are permissible as they stand without further
10:27:27 8 change or modification.

10:27:29 9 All right. Is Plaintiff prepared to present its
10:27:35 10 next witness by deposition?

10:27:37 11 MS. FAIR: Yes, Your Honor.

10:27:38 12 THE COURT: Are you going to go to the podium and
10:27:40 13 introduce the witness for the jury?

10:27:43 14 MS. FAIR: Yes, Your Honor.

10:27:44 15 THE COURT: All right. Let's bring the jury in,
10:27:47 16 please.

10:27:47 17 MS. FAIR: Did you want me go now, Your Honor, or
10:27:53 18 did you want me to wait --

10:27:54 19 THE COURT: You can go to the podium.

10:27:56 20 COURT SECURITY OFFICER: All rise.

10:27:57 21 (Jury in.)

10:28:30 22 THE COURT: Welcome back, ladies and gentlemen.
10:28:46 23 Please be seated.

10:28:46 24 All right. Plaintiff, call your next witness.

10:28:50 25 MS. FAIR: Your Honor, the Plaintiff calls

10:28:53 1 Mr. Esat Yilmaz by deposition, a co-inventor on the '311
10:28:58 2 patent.

10:28:59 3 And, for the record, the time counted -- to be
10:29:01 4 counted against Solas is 40 minutes, and Samsung's portion
10:29:05 5 of the clips are 42 minutes. And there are some exhibits
10:29:09 6 used to correlate the Yilmaz exhibit number with the
10:29:15 7 PTX-number, if I may for the record?

10:29:16 8 THE COURT: Go ahead.

10:29:17 9 MS. FAIR: Yilmaz Exhibit No. 4 is PTX-003.
10:29:24 10 Yilmaz Exhibit 18 is PTX-701. Yilmaz Exhibit 32 is
10:29:31 11 PTX-702. Yilmaz Exhibit 33 is PTX-692. Yilmaz Exhibit 34
10:29:39 12 is PTX-694.

10:29:42 13 THE COURT: All right. Proceed with the witness
10:29:47 14 by deposition.

10:29:49 15 MS. FAIR: Thank you, Your Honor.

10:29:49 16 ESAT YILMAZ, PLAINTIFF'S WITNESS

10:29:49 17 PRESENTED BY VIDEO DEPOSITION

10:29:51 18 (Videoclip played.)

10:29:51 19 Q. Good morning. Can you state your current address?

10:29:54 20 A. Good morning. 681 Nobel Drive, Santa Cruz, California,
10:30:03 21 95060.

10:30:04 22 Q. Okay. How long has the firm of Russ Kabat been
10:30:11 23 representing you individually?

10:30:12 24 A. We have been communicating about a year, I believe.

10:30:22 25 Q. Now, you said you'd been communicating with them for

10:30:27 1 about a year. And I want to make clear, have you been
10:30:31 2 communicating with them as your individual counsel, as
10:30:36 3 opposed to have you been communicating with them in their
10:30:39 4 capacity as counsel for Solas?

10:30:41 5 A. I've signed a contract with them.

10:30:47 6 Q. And is that a consulting agreement?

10:30:50 7 A. Yes.

10:30:53 8 Q. Okay. Okay. You're one of the named inventors on a
10:30:58 9 patent that the last three numbers of which are the '311;
10:31:02 10 is that correct?

10:31:02 11 A. That's correct.

10:31:02 12 Q. If I refer to that patent as the '311 patent, will you
10:31:06 13 understand I'm referring to that -- that patent?

10:31:11 14 A. Yes.

10:31:11 15 Q. And who are the other inventors on that; do you recall?

10:31:15 16 A. Jalil Shaikh and Steve Laub.

10:31:17 17 Q. Okay. Did -- did you review the '311 patent?

10:31:22 18 A. Not recently.

10:31:27 19 Q. So you did not do so within the last two or three
10:31:31 20 weeks?

10:31:31 21 A. No.

10:31:32 22 Q. Let me clarify. My question is simply whether since
10:31:37 23 you received the subpoena, you have, in fact, reviewed the
10:31:40 24 '311 patent?

10:31:40 25 A. I'm sorry, my memory is not so clear whether I did or

10:31:59 1 not or when I did last time. But at some point, I did, but
10:32:08 2 it was not recently, you know. Not in the last, you know,
10:32:14 3 period, as far as I can remember.

10:32:17 4 Q. Did you get a plaque from Atmel for the patents that
10:32:24 5 you had issued?

10:32:25 6 A. I did, a few.

10:32:28 7 Q. Okay.

10:32:28 8 A. Probably about 20 or so.

10:32:29 9 Q. And you still have those?

10:32:33 10 A. I have them somewhere. I have not seen them for a
10:32:37 11 while, but --

10:32:39 12 Q. Not up on the -- they're not up on the wall in your
10:32:42 13 office there?

10:32:43 14 A. They should be. They should -- yeah.

10:32:45 15 Q. Okay. You should have in front of you a copy of
10:32:50 16 Exhibit 4, the '311 patent.

10:32:53 17 Do you recognize this patent?

10:32:55 18 A. Yes.

10:32:55 19 Q. And is it your understanding that this patent is the
10:33:04 20 reason you're here today?

10:33:08 21 A. Yes.

10:33:10 22 Q. Can you generally describe for me, in your own words,
10:33:17 23 the individual contributions that you, Mr. Laub, and
10:33:24 24 Mr. Shaikh contributed to this patent -- to the claimed
10:33:29 25 inventions in the patent?

10:33:33 1 ATTORNEY: Objection as to form.

10:33:44 2 A. I don't remember clearly what the individual
10:33:49 3 contributions were. We were in a meeting.

10:33:52 4 Q. Who was in the meeting?

10:34:09 5 A. It -- it would have been at least the three of us, but
10:34:14 6 I can't remember exactly who was in the meeting.

10:34:17 7 Q. You and Mr. Laub and Mr. Shaikh were in a meeting; is
10:34:26 8 that correct, at some point?

10:34:27 9 A. Yes, I believe that that was how the three of us ended
10:34:39 10 up on this patent.

10:34:39 11 Q. And am I correct that you're not sure whether there may
10:34:43 12 have been other people in attendance at that meeting?

10:34:47 13 A. Yeah, it would have been in the board room, if I
10:34:51 14 remember correctly. There might have been other people, as
10:34:57 15 well, but I -- I cannot remember.

10:34:58 16 Q. And -- and what was discussed at that meeting?

10:35:05 17 A. I mean, it would have been technology, but I can't
10:35:20 18 remember the details so far back.

10:35:23 19 Q. If you recall approximately, when did this meeting that
10:35:31 20 you're referring to take place in relation to the October
10:35:34 21 28, 2011, date?

10:35:36 22 A. I -- I couldn't tell you. I'm not sure.

10:35:47 23 Q. Did the meeting that you previously testified about,
10:35:53 24 where you, Mr. Laub, and Mr. Shaikh and possibly others
10:35:58 25 were present, relate at all to any of the subject matter of

10:36:03 1 Claim 1?

10:36:04 2 A. We were discussing technology at the time. I remember
10:36:13 3 there was a meeting, but I can't remember exactly what was
10:36:18 4 discussed -- discussed in that. I might have given an
10:36:22 5 update about, you know, our progress from technology point
10:36:26 6 of view. Because Steve and Jalil are -- well, Jalil is a
10:36:38 7 marketing person, and Steve is the CEO of the company, or
10:36:44 8 was the CEO.

10:36:45 9 Q. With respect to this -- to Claim 1 of the '311 patent,
10:36:49 10 what would you say was your contribution to the subject
10:36:53 11 matter of that patent -- of that claim?

10:36:55 12 A. So I'm the technology guy. So I've helped develop the
10:37:03 13 technology, the flexible touch sensor that is, you know,
10:37:12 14 capable of, you know, flexing and bending around displays
10:37:20 15 or -- or not. You know, it's a versatile material.

10:37:27 16 Q. And what -- what, if anything, do you recall Mr. Shaikh
10:37:32 17 contributing to the subject matter of Claim 1?

10:37:35 18 A. I can't recall exactly. We would have been discussing,
10:37:54 19 you know, what -- what can we do with -- what kind of
10:37:58 20 applications we can do with this kind of technology.

10:38:00 21 Q. Do you recall what contribution Mr. Laub made to the
10:38:10 22 subject matter of Claim 1 of the '311 patent?

10:38:13 23 A. No, for the same reason.

10:38:15 24 Q. Okay. Well, let me ask you to go back and look at the
10:38:20 25 lines between Column 7, Line 60 and Line 65.

10:38:28 1 And that reads, quote, as an example and not by
10:38:32 2 way of limitation, touch-sensitive apparatus 612 may be
10:38:38 3 wrapped over surfaces that are substantially perpendicular
10:38:42 4 to each other, or if there is no substantial distinction
10:38:49 5 between surfaces, paren, such as, for example, a
10:38:54 6 pebble-shaped or curved device, close paren, an angle of
10:38:59 7 deviation between the surfaces of 45 degrees or greater,
10:39:03 8 close quote.

10:39:04 9 A. Uh-huh.

10:39:06 10 Q. If you'd like, you can take as much time, again, to go
10:39:09 11 back and read that or read it in the context of -- of the
10:39:13 12 entire patent, if you want, or this paragraph. But --

10:39:17 13 A. Yeah.

10:39:17 14 Q. -- would you agree with me that that sentence is
10:39:21 15 drawing a distinction between what it calls curved or
10:39:26 16 pebble-shaped surfaces on the one hand and surfaces that
10:39:33 17 are substantially perpendicular to each other?

10:39:50 18 A. So pebble-shaped -- I'm just trying to remember why it
10:39:57 19 was written this way. It might have been for irregular
10:40:07 20 shapes, perhaps, where we could not distinguish the edge.
10:40:17 21 That's why we talk about pebble-shaped.

10:40:22 22 Q. Well, you're saying a pebble-shaped wouldn't have an
10:40:30 23 edge?

10:40:32 24 A. That's right.

10:40:33 25 Q. There's a distinction being drawn between surfaces

10:40:40 1 which have edges and surfaces which have no distinct --
10:40:45 2 substantial distinction between the surfaces?

10:40:47 3 A. Yeah.

10:40:48 4 Q. And a -- can we go on to Exhibit 5?

10:40:55 5 Do you recognize this document?

10:40:58 6 A. Yeah. Looks familiar as my contract.

10:41:19 7 Q. Is that your signature on the third page?

10:41:21 8 A. Yes.

10:41:26 9 Q. Okay. Is this consulting agreement still in effect?

10:41:33 10 A. I believe so, yes.

10:41:37 11 Q. And since the date of this agreement, have you been
10:41:42 12 providing consultation to Russ Kabat?

10:41:48 13 A. Yes.

10:41:53 14 Q. Okay. Can you tell me just a little bit about your
10:42:03 15 educational background, and briefly your work experience
10:42:10 16 from the time -- from high school or after, up until the
10:42:14 17 time you joined Atmel?

10:42:14 18 A. Uh-huh. I went to university in the U.K.

10:42:25 19 Okay. So I went to high school in Turkey. And I
10:42:33 20 went to -- to university in the U.K., University of
10:42:40 21 Southampton. And I did Bachelor's and Master's of computer
10:42:52 22 engineering.

10:42:52 23 Q. And can you then briefly outline for me your work
10:42:57 24 experience up to the time you joined at Atmel?

10:43:00 25 A. Yes. So I started working for a local company in the

10:43:05 1 same city, Southampton, a company called Electron Dynamics.
10:43:12 2 I work there until 2006.

10:43:17 3 And in 2006, I joined the company called Quantum
10:43:32 4 Research Group. So this is a company that is related to
10:43:35 5 touch technology, one of the, you know, leaders, original
10:43:39 6 leaders of the technology.

10:43:48 7 So I worked there until 2008, and Atmel acquired
10:43:53 8 that company.

10:43:54 9 Q. Okay. At Quantum Touch, can you just -- can you
10:43:58 10 generally tell me when you first began working on anything
10:44:01 11 that you would consider to be related to touch sensors and
10:44:05 12 generally what that work was?

10:44:08 13 A. So my initial work was working on chips, touch
10:44:15 14 controller chips. But right away, pretty much right away,
10:44:23 15 I got into also touch sensor design. Yeah. Initial
10:44:30 16 coding. And that coding and algorithm development,
10:44:34 17 et cetera, that -- I continued to work on that, as well as
10:44:38 18 working on touch sensors, as well, you know, design of the
10:44:42 19 touch sensor.

10:44:43 20 Q. Okay. When did you first begin working with copper as
10:44:49 21 a substance to use in the touch sensor circuitry?

10:45:03 22 A. It must have been around 2007, I think.

10:45:07 23 Q. What led you to begin working with copper as a material
10:45:13 24 for the circuitry of the touch sensor?

10:45:14 25 A. At the time, we were looking for better materials. We

10:45:31 1 knew the resistance of ITO was very high. So we started,

10:45:40 2 you know, investigating what options we have.

10:45:45 3 Q. And copper, I take it, had less resistance than ITO?

10:45:52 4 A. That's correct.

10:45:52 5 Q. Was there anything else about copper that led you to

10:45:55 6 begin working with copper as a possible material to use for

10:46:00 7 the circuitry of the touch sensor?

10:46:02 8 A. Resistance and flexibility were the two very key

10:46:11 9 components.

10:46:11 10 Q. And -- and the -- the flexibility that copper gave

10:46:20 11 you at that time, did you consider or realize that it would

10:46:23 12 allow you to flex a touch sensor in some fashion or bend

10:46:30 13 it, curve it?

10:46:32 14 A. Yes.

10:46:37 15 Q. Yeah.

10:46:38 16 A. Yes, we -- that was one of our initial thoughts. As

10:46:42 17 well as -- there are two aspects to it that -- two aspects

10:46:46 18 to it. There is the yield aspect, which is, you know,

10:46:50 19 handling of the material and the processing. If the

10:46:53 20 material is less brittle and more flexible, then the yields

10:46:57 21 can be higher.

10:46:57 22 Q. Well, when is the first time at anywhere that you were

10:47:03 23 involved in a project where you could make a flexible touch

10:47:08 24 sensor using copper?

10:47:08 25 A. I -- I can't remember the exact date, but it would have

10:47:34 1 been after the acquisition. I believe we used copper to
10:47:38 2 make a touch sensor.

10:47:39 3 Q. And at the time that you made this touch sensor, was it
10:47:48 4 just on a flat display, or was it on a flat display that
10:47:53 5 had curvature at the edges?

10:47:56 6 A. I think the first samples were on flat --

10:48:02 7 Q. Okay.

10:48:02 8 A. -- flat displays.

10:48:09 9 Q. And who did you work with on making those first
10:48:17 10 displays using copper?

10:48:18 11 A. The manufacturing was done in the U.K. by a U.K.
10:48:29 12 company, CIT. And I think we would have just made the
10:48:42 13 prototypes ourselves at that time initially.

10:48:44 14 Q. What -- what did U.K., the CIT company, do?

10:48:52 15 A. They were the manufacturing partner for us, for our
10:48:55 16 technology.

10:48:57 17 Q. So CIT could print copper lines on substrates?

10:49:03 18 A. Yes.

10:49:03 19 Q. And what was the substrate that you used for the first
10:49:14 20 touch sensor, flexible touch sensors using copper that you
10:49:18 21 came up with?

10:49:21 22 A. It would have been PET.

10:49:23 23 Q. PET?

10:49:24 24 A. PET.

10:49:26 25 Q. Okay. Do you recall whether they -- whether CIT had

10:49:31 1 the ability to print copper lines on flexible substrates,

10:49:36 2 whether they were clear or not?

10:49:37 3 A. Yes, I think they -- they could.

10:49:41 4 Q. And was that one of the attractions to CIT for Atmel?

10:49:46 5 A. That's correct.

10:49:46 6 Q. And why was being able to print on flexible substrates

10:49:52 7 an attraction?

10:49:55 8 A. You know, we wanted roll-to-roll manufacturing. You

10:50:01 9 know, we wanted to be a flexible material. So that's why

10:50:10 10 we -- you know, we sampled these companies.

10:50:14 11 Q. Okay. And that was before -- at some point with Atmel,

10:50:17 12 you transferred to the U.S.; is that correct?

10:50:20 13 A. Yes. That's correct.

10:50:21 14 Q. So this -- let me focus now on the time you were still

10:50:25 15 in the U.K.

10:50:27 16 A. Okay.

10:50:27 17 Q. If -- what I'm asking, for example, is if I -- if I

10:50:33 18 have a piece of paper in front of me, and if -- if I

10:50:36 19 printed copper lines on it to make a touch sensor, did you

10:50:40 20 ever pick up the thing and -- and it just sort of bent or

10:50:46 21 flexed sort of like I'm doing with the paper?

10:50:50 22 A. Yes.

10:50:50 23 Q. If you recall.

10:50:52 24 A. Yes, of course, we had -- yeah, we handled material.

10:50:56 25 Yes.

10:50:56 1 Q. And it could flex, it curved?

10:51:01 2 A. That's right.

10:51:02 3 Q. All right.

10:51:03 4 A. It's like a piece of paper when it's manufactured.

10:51:05 5 Q. Okay. And that was one of the benefits of copper, that
10:51:08 6 it wouldn't peel off when you -- when it flexed like that,
10:51:14 7 correct?

10:51:14 8 A. It is correct. But ITO can also flex when it's handled
10:51:21 9 before it's manufactured like that on a piece of sheet.

10:51:25 10 Q. What I -- what I was asking is, at the time that you
10:51:30 11 were working with CIT on these flexible copper touch
10:51:37 12 sensors where the copper wiring was put on PET --

10:51:40 13 A. Right.

10:51:41 14 Q. -- did you or anyone working with you consider the
10:51:46 15 possibility of being able to use that kind of a flexible
10:51:58 16 touch sensor and sort of curve it at the edges or curve it
10:52:00 17 in the middle or curve it somehow and use it in that curved
10:52:04 18 sense?

10:52:05 19 A. I don't think so, no.

10:52:12 20 Q. Well, let me ask you this: Just from a technical
10:52:18 21 sense, once you have a flexible substrate where you can
10:52:25 22 print copper wires, that, as you said, when you would pick
10:52:29 23 it up would flex like a piece of paper, would it -- would
10:52:33 24 it be relatively obvious that one of the things you could
10:52:38 25 do with it is to wrap it around surfaces? From a technical

10:52:45 1 standpoint. That's not a great technological leap, is it?

10:52:49 2 A. Yeah, I'm not sure. I can't quantify whether it's a
10:52:54 3 big leap or not.

10:52:54 4 Q. And what were the line widths, if you recall,
10:53:01 5 approximately, that the copper lines were?

10:53:03 6 A. It would have been quite wide at the time. 7 micron,
10:53:16 7 you know, 9 micron initially.

10:53:24 8 Q. And by -- was that approximately the size of the PET
10:53:29 9 and the copper lines that you were working with at the time
10:53:32 10 you left England to come to the United States?

10:53:37 11 A. I think we might have already reduced it by that time.

10:53:41 12 Q. Based on your overall experience with flexible touch
10:53:51 13 sensors, was -- is there anything about the copper-based
10:53:55 14 flexible touch sensors you were working on in England for
10:53:57 15 Atmel, was there anything about them, in your view, that
10:54:05 16 would have made them unusable to wrap around a curved
10:54:10 17 surface of a display?

10:54:12 18 A. That would have made them unusable? No.

10:54:27 19 Q. It wouldn't have been -- you couldn't have used what
10:54:35 20 you were working with when you left England to wrap around
10:54:39 21 a curved surface, in your view?

10:54:43 22 A. I think they could be wrapped, but we never checked --
10:54:47 23 we never qualified that process. Yeah.

10:54:49 24 Q. When you transferred to Atmel in the U.S., was that at
10:54:55 25 their headquarters in San Jose?

10:54:58 1 A. Yes.

10:54:59 2 Q. And it was flexible, the substrate?

10:55:05 3 A. Before it was -- yeah, during manufacturing, it was

10:55:09 4 roll-to-roll manufacturing. So it was flexible.

10:55:13 5 Q. Actually, when you say roll-to-roll, can you describe

10:55:17 6 the process that -- that the copper wiring was put on the

10:55:24 7 rolls of PET?

10:55:25 8 A. Oh, sure. Sure.

10:55:27 9 So our process was, we had a roll of PET. But it

10:55:41 10 was a special-treated PET, not just bare PET, but had some

10:55:46 11 special treatment. And we would put a -- a base coat on

10:55:53 12 the PET.

10:55:55 13 So it's a coated material, coated PET. Then we

10:55:59 14 would expose the circuit pattern using an exposure machine.

10:56:11 15 And -- and then we would develop. And where -- where we

10:56:15 16 did not expose the circuit, we would wash away during the

10:56:22 17 develop process.

10:56:23 18 So we would end up with -- after the develop

10:56:30 19 process, we would end up with -- you know, you could say

10:56:32 20 like pedestals where we wanted the circuit to be.

10:56:37 21 And then in the next process, we would plate with

10:56:47 22 copper on those pedestals. Then we would test and apply a

10:56:54 23 further coating, a protective coating, as the roll-to-roll,

10:57:00 24 yeah.

10:57:00 25 Q. And the PET, when you say it was a roll, was it a roll

10:57:05 1 like a roll of toilet paper -- not toilet paper, but paper
10:57:10 2 towels?

10:57:10 3 A. Yes.

10:57:12 4 Q. Okay.

10:57:13 5 A. Yes, yes.

10:57:14 6 Q. And that would unroll and go through the machine that
10:57:17 7 printed the circuit on it, correct?

10:57:18 8 A. Exactly, yes.

10:57:19 9 Q. And -- and then when it was finished, would it be
10:57:23 10 re-rolled up with the circuit on it?

10:57:25 11 A. That's correct.

10:57:25 12 Q. Okay. So it went from roll-to-roll?

10:57:31 13 A. That's correct.

10:57:32 14 Q. So -- and when did you first begin using that kind of
10:57:41 15 roll-to-roll process? Was that something you did in
10:57:43 16 England?

10:57:43 17 A. We did.

10:57:44 18 Q. At CIT?

10:57:45 19 A. Yes. Right from the beginning, it had to be
10:57:48 20 roll-to-roll for it to be mass-produceable.

10:57:58 21 Q. So in that case, the printed circuit on the PET would
10:58:03 22 actually be in a circle, so to speak?

10:58:09 23 A. Yeah. Wrapped, yes.

10:58:14 24 Q. We can take that down.

10:58:16 25 Okay. Before the break, I'd asked you some

10:58:25 1 questions about the -- how the copper was printed on the
10:58:29 2 PET substrate, and you said it went from one roll through a
10:58:34 3 lithography. Can I call it a lithography process, and then
10:58:39 4 rolled up again?

10:58:40 5 A. Correct. Right.

10:58:41 6 Q. Yeah. Okay. When -- when the printed PET was
10:58:47 7 delivered to Atmel, in what form was it delivered? Rolls
10:58:51 8 of some sort?

10:58:51 9 A. This is at the time of CIT?

10:59:01 10 Q. Yeah, at the time of CIT first.

10:59:05 11 A. Okay. So I'm not hundred percent because at some point
10:59:27 12 it was cut into panels. At the beginning, it might have
10:59:38 13 been delivered in a roll form.

10:59:41 14 Q. And do you recall just approximately what the size of
10:59:45 15 the roll was, like what the inner radius of what it was and
10:59:50 16 the outer radius?

10:59:59 17 A. It's multiple inches. I -- I don't know. It's -- it
11:00:06 18 might have been 5-inch, something like that, the inner
11:00:10 19 radius. Sorry, inner diameter?

11:00:15 20 Q. Yeah.

11:00:15 21 A. I shouldn't -- yeah, I shouldn't guess that. It's
11:00:20 22 multiple inches, but I -- I'm not sure exactly.

11:00:29 23 Q. Okay. And the -- the copper wiring, whatever that
11:00:33 24 inner diameter was, didn't crack or peel away from the PET,
11:00:37 25 correct?

11:00:37 1 A. No, that was our standard product. If it did, this
11:00:46 2 would have been a defect.

11:00:48 3 Q. If it had cracked or peeled, correct?

11:00:50 4 A. If it -- if it cracked or peeled, this would be a
11:00:55 5 defect.

11:00:57 6 Q. Okay. And I'm just going to ask you from a -- I guess
11:01:03 7 a technical or maybe a non-technical standpoint, just
11:01:07 8 looking at that 6-inch roll, it would be pretty clear that
11:01:13 9 the copper-coated flexible substrate could at least wrap
11:01:20 10 around a curved surface of that dimension, correct?

11:01:24 11 A. That's -- that's how it was manufactured.

11:01:27 12 Q. Yeah. And it would be pretty clear you could wrap it
11:01:31 13 around the same thing in use, correct?

11:01:33 14 A. It was -- yeah, it was manufactured in that form.
11:01:39 15 It's -- it's meant to be robust during manufacturing at
11:01:43 16 high yield.

11:01:43 17 Q. And also meant to be robust when it's used in a
11:01:51 18 finished product, correct?

11:01:53 19 A. It is.

11:01:53 20 Q. And it -- it was pretty robust when it was wrapped
11:01:59 21 around a 6 -- a 6-inch core, correct?

11:02:02 22 A. Yes.

11:02:03 23 Q. Mr. Yilmaz, you can see that this is a patent
11:02:09 24 application for a capacitive position sensor?

11:02:14 25 A. Yes.

11:02:15 1 Q. And this was filed, I believe, in 2009.

11:02:26 2 If we can go down.

11:02:32 3 A. Yeah.

11:02:32 4 Q. Correct? April 10, 2009?

11:02:37 5 A. Yes.

11:03:11 6 Yeah, I remember this one.

11:03:13 7 Q. Is -- is there a particular reason you remember this
11:03:15 8 one?

11:03:16 9 A. It was a clever idea.

11:03:20 10 Q. It was a what idea?

11:03:24 11 A. Clever.

11:03:25 12 Q. Okay. And what was the clever idea about it?

11:03:28 13 A. It was actually quite neat. It's -- it's a way of
11:03:34 14 spatial interpolation on the sense lines.

11:03:41 15 Q. And it -- it was -- it's talking about using the touch
11:03:46 16 sensor that's described in this patent on top of a display
11:03:52 17 panel, correct?

11:03:53 18 A. The touch sensor on to a display module.

11:04:03 19 Q. Well, Paragraph 21 is -- in the patent is saying, one
11:04:08 20 important combination --

11:04:09 21 A. Yes.

11:04:11 22 Q. -- of a touch sensor is to use it with a display
11:04:14 23 module, correct?

11:04:15 24 A. Yes, I see that. Yes.

11:04:16 25 Q. And it then says it can likely be made of ITO, correct?

11:04:21 1 A. Yes.

11:04:21 2 Q. Let's look at Paragraph 24.

11:05:03 3 A. Okay.

11:05:04 4 Q. There it's talking about the touch sensor with the
11:05:08 5 drive and sense electrodes, correct?

11:05:11 6 A. Yes.

11:05:11 7 Q. Why don't we look at Paragraph 75.

11:05:20 8 And you'll see there that one of the substrates on
11:05:54 9 which the touch sensor could be -- that the circuitry of
11:05:59 10 the touch sensor could be mounted was PET?

11:06:03 11 A. Yes, I see that.

11:06:05 12 Q. And was the PET at this time period flexible?

11:06:11 13 A. Yes.

11:06:16 14 Q. Okay. Why don't we go down and look at Paragraph 120.

11:06:26 15 In the middle of that paragraph -- you can take
11:06:43 16 your time to review the whole paragraph if you'd like --
11:06:47 17 there's a statement that says: The electrodes comprising
11:06:52 18 the electrode pattern. And that's the sense and drive
11:06:56 19 electrodes, correct?

11:06:57 20 A. Electrodes comprising the electrode pattern. Yes.

11:07:04 21 Q. Could be indium tin oxide, ITO?

11:07:08 22 A. Yeah.

11:07:09 23 Q. And it also says the substrate could be used with
11:07:14 24 materials such as copper, correct?

11:07:17 25 A. Yes.

11:07:19 1 Q. Okay. And both ITO and copper are flexible, but copper
11:07:24 2 is -- is more flexible than ITO, correct?

11:07:28 3 A. Correct.

11:07:30 4 Q. Okay. Let's look at 155 and 156.

11:08:12 5 Let me know when you've finished reviewing that.

11:08:18 6 A. Okay.

11:08:18 7 Q. And in there, it's -- it's talking again about the
11:09:16 8 touch sensor, correct? Generally?

11:09:21 9 A. Yeah.

11:09:23 10 Q. And in -- in that paragraph, it's -- it's talking about
11:09:26 11 the drive and sense electrodes are made up of thin wires or
11:09:31 12 a mesh of wire, correct?

11:09:32 13 A. Yes, I see that.

11:09:38 14 Q. Is Figure 17 a mesh pattern?

11:09:40 15 A. I mean, yeah, you could call it mesh, yeah.

11:10:00 16 Q. Well, in fact, in the paragraph we read, it was
11:10:03 17 referred to as a mesh, correct?

11:10:04 18 A. Yes.

11:10:07 19 Q. Okay. Let's look at Figure 18 a moment while you're
11:10:10 20 there.

11:10:11 21 And that mesh pattern, as examples there, could be
11:10:26 22 used as a touch sensor on a laptop computer?

11:10:34 23 A. Yes.

11:10:34 24 Q. And do you recall that in -- in the Exhibit 22, that
11:10:42 25 this patent application, this published patent application,

11:10:45 1 that you also described a -- a way for providing circuitry
11:10:56 2 that would be able to control or read the output from the
11:11:02 3 touch sensor?

11:11:06 4 A. The touch controller chip?

11:11:11 5 Q. Yes.

11:11:12 6 A. Yes.

11:11:13 7 Q. Well, this patent described a -- an overall system that
11:11:18 8 included a touch sensor on a flexible substrate with copper
11:11:26 9 wiring in a mesh pattern, correct?

11:11:31 10 A. Yes.

11:11:31 11 Q. That could be used on a cell phone or a computer
11:11:36 12 display?

11:11:37 13 A. Yes.

11:11:38 14 Q. And it says that copper metal mesh can be used on a PET
11:11:46 15 substrate, correct?

11:11:47 16 A. That's correct.

11:11:48 17 Q. And at the time that this was filed, 2009, PET on which
11:11:57 18 you were putting copper metal mesh was flexible, correct?

11:12:00 19 A. Yes.

11:12:08 20 Q. And -- and the metal mesh had sense and drive
11:12:15 21 electrodes on opposite sides of that substrate, correct?

11:12:18 22 A. Yes.

11:12:24 23 Q. But -- but what you -- just -- what kind of a touch
11:12:29 24 sensor in a general sense that's being described in
11:12:31 25 Exhibit 22 and in the '311 patent is a copper-based touch

11:12:37 1 sensor that can be printed on a flexible PET substrate,
11:12:45 2 correct?

11:12:45 3 A. Yes.

11:12:52 4 Q. The technical description -- one of the technical
11:12:56 5 descriptions in Exhibit 22, the patent application, is the
11:13:00 6 use of a copper-based touch sensor on a flexible PET
11:13:04 7 substrate with drive and sense electrodes on opposite sides
11:13:08 8 of the substrate.

11:13:13 9 A. Uh-huh.

11:13:14 10 Q. And in the Figures 18, 19, and 20 of Exhibit 22, you're
11:13:20 11 showing the use of that touch sensor on flat surfaces,
11:13:24 12 correct?

11:13:24 13 A. Right. Yes.

11:13:25 14 Q. And is the idea of wrapping it around technologically
11:13:35 15 the difference between what's described and shown in
11:13:38 16 Exhibit 22 and what's described in the '311 patent, from a
11:13:44 17 technical standpoint?

11:13:46 18 A. So this -- this -- what do you call it, this -- this
11:13:58 19 document that we are reviewing right now --

11:14:00 20 Q. It's a published patent application.

11:14:02 21 A. Yeah. It is describing an invention on a metal mesh
11:14:12 22 touch sensor, but a very early version of that.

11:14:17 23 Q. Right.

11:14:18 24 A. It's not identical to what we did at a later time.

11:14:23 25 This would have been very low yield and might not have

11:14:28 1 qualified for flexible -- or wrap-around application.

11:14:35 2 Q. Okay. But did -- when you touched the sensor in the
11:14:39 3 proto -- the -- the ones that you were -- you were making
11:14:47 4 at the time that you filed Exhibit 22, would the sensor
11:14:53 5 pick up the touch enough to be able to control some device
11:14:56 6 or some -- to control something?

11:14:58 7 A. So we might not have made this prototype, even, for --
11:15:19 8 with metal mesh. So I would be guessing if I said it
11:15:29 9 would -- you know, this particular design would work.

11:15:33 10 But what -- what we were doing or what -- you
11:15:37 11 know, what was done here is that they've taken ITO design
11:15:43 12 and created a metal mesh version of it.

11:15:45 13 And I don't know if that makes sense.

11:15:50 14 Q. Yeah. Using copper, correct?

11:15:51 15 A. Using copper, basically just traced around and then
11:15:57 16 just did some in-fill -- filling -- filling the -- you
11:16:01 17 know, the areas of the electrode with some --

11:16:05 18 Q. Let me ask you -- okay. I'm sorry. Go ahead.

11:16:08 19 A. Some diagonal lines.

11:16:10 20 So I -- I don't think we -- we ever tested this
11:16:14 21 particular design with -- with, like, actual physical
11:16:19 22 sensor.

11:16:20 23 Q. Well, did you make any -- did you make the sensor
11:16:27 24 itself and a controller on a flexible PET substrate enough
11:16:31 25 to know that it would detect a touch, and the touch could

11:16:36 1 then be used to control something?

11:16:38 2 A. So I think we might not have made this particular
11:16:47 3 sensor, this is a metal mesh, and with this kind of design.

11:16:54 4 Q. Okay. The -- the embodiment -- an embodiment described
11:16:58 5 in the -- in Exhibit 22 is a copper touch sensor with sense
11:17:02 6 and drive electrodes on opposite side of a PET flexible
11:17:14 7 substrate for use in a mobile phone, correct?

11:17:18 8 That's an embodiment that we just saw was
11:17:22 9 described in various places in the patent, correct?

11:17:25 10 A. Yes.

11:17:26 11 Q. Atmel produced a product called XSense at one point,
11:17:33 12 correct?

11:17:33 13 A. Yes.

11:17:33 14 Q. That's what they went to market with?

11:17:38 15 A. That's correct.

11:17:43 16 Q. All right. The XSense sensor was a copper-based touch
11:17:49 17 sensor on a flexible PET substrate, correct?

11:17:51 18 A. Yes.

11:17:53 19 Q. And you had -- by the time you were commercializing,
11:18:03 20 the XSense technology had used that flexible touch sensor
11:18:09 21 to -- to go around the curved edges of the -- to go -- to
11:18:15 22 cover the curves of a curved display, correct?

11:18:19 23 ATTORNEY: Objection as to form.

11:18:23 24 A. Of a curved display?

11:18:29 25 Q. Had you done so?

11:18:33 1 A. I don't think there were any curved displays at the
11:18:40 2 time.

11:18:40 3 Q. Okay. And was that up through the time that Atmel sold
11:18:43 4 the XSense technology to Uni-Pixel?

11:18:55 5 A. Yes, I think I've not -- I had not seen that curved
11:19:01 6 display up to that point.

11:19:03 7 Q. And is it correct that XSense hadn't made a flexible
11:19:09 8 copper-based touch sensor that -- that it had placed over a
11:19:22 9 curved display?

11:19:24 10 ATTORNEY: Objection as to form.

11:19:29 11 A. Yes, I -- I don't think we had seen a curved display at
11:19:43 12 the time.

11:19:43 13 Q. And am I correct that up until the time that Atmel sold
11:19:47 14 the XSense technology to Uni-Pixel, Atmel had not actually
11:19:54 15 taken a copper-based touch sensor on a PET flexible
11:20:03 16 substrate and wrapped it around the edge of a mobile phone
11:20:10 17 display?

11:20:11 18 A. We certainly created prototypes and wrapped -- wrap
11:20:25 19 around multiple demo systems, mobile phones. So we have --
11:20:32 20 we have that.

11:20:33 21 Q. And how -- how long after the patent application was
11:20:39 22 filed did you have those prototypes?

11:20:41 23 A. I mean, the curve -- curved, we -- we started with very
11:20:48 24 early, even maybe before the patent application, we had put
11:20:53 25 actually curved sensors around a display.

11:20:57 1 Q. And was it after the patent was filed, which is October
11:21:03 2 28, 2011, that Atmel first made a prototype that wrapped
11:21:13 3 around the edges, for example, of a perpendicular display?
11:21:18 4 A. We had prototypes, I believe, in July 2011, July or
11:21:34 5 August, of -- of our touch sensor wrapped around.
11:21:40 6 Q. And you think that was July or August?
11:21:43 7 A. Yes. That was the -- the prototyping we did to develop
11:21:48 8 the technology.
11:21:48 9 Q. And did the -- did that prototype work?
11:21:58 10 A. Yes, we test it.
11:22:00 11 Q. And -- and when I say -- when you say it worked, what
11:22:05 12 do you mean?
11:22:05 13 A. Functionally. We did functional testing.
11:22:11 14 Q. And by that, you mean you could touch the sensor and --
11:22:15 15 and get a readout as to where that touch occurred?
11:22:19 16 A. Yes.
11:22:19 17 Q. And were you able -- after developing the flexible
11:22:30 18 touch sensor of the type described in the '311 for a curved
11:22:35 19 surface, were you later able to develop a working model of
11:22:44 20 a touch sensor of the type described in the '311 for a
11:22:46 21 display that had perpendicular sides, where the touch
11:22:54 22 sensor covered the top and over the edge and down the side?
11:22:57 23 A. Yes.
11:22:57 24 Q. And when was that?
11:22:59 25 A. I'm not hundred percent sure of the date.

11:23:16 1 Q. Was it a -- if you've completed the first project near
11:23:23 2 the end of June or early July, did -- was the project of
11:23:29 3 trying to wrap it around a display that was flat and
11:23:36 4 extended down the sides done two months later, three months
11:23:42 5 later, one month later? Do you know, anything other than
11:23:46 6 would be a guess?

11:23:46 7 A. I think it would be a guess.

11:23:49 8 Q. At any time after June 21st, did you have a -- a
11:23:53 9 working device that had a display that was curved, the
11:24:02 10 display itself was curved, where the touch sensor overlaid
11:24:10 11 the curved display?

11:24:12 12 A. No.

11:24:13 13 Q. Did you have such a prototype prior to the time October
11:24:19 14 28th, 2011, that you filed the patent application for the
11:24:24 15 '311?

11:24:24 16 A. With a curved display?

11:24:29 17 Q. Yes.

11:24:30 18 A. No, we did not have access to curved display.

11:24:33 19 Q. When was the first time you had a working model of a
11:24:37 20 flexible substrate of the type described in the '311 patent
11:24:41 21 that was able to fit over a curved display?

11:24:47 22 A. So the -- the touch sensor, or the touch panel that we
11:24:59 23 created, could have fit over a curved display. We made a
11:25:07 24 demo, in fact, for it, as well.

11:25:10 25 But -- yeah, but we never actually built it into a

11:25:14 1 system with a curved display. We did not have access.

11:25:17 2 Q. So you never had access to a curved display?

11:25:22 3 A. That's correct.

11:25:23 4 Q. But you -- you -- you could -- you tested the flexible
11:25:34 5 touch sensor as it was flexed, being flexed; is that
11:25:39 6 correct?

11:25:39 7 A. That's correct. Over a -- over a curved display or
11:25:43 8 even a flat display.

11:25:44 9 Q. Well, you said -- I think you said you didn't have a
11:25:47 10 curved display?

11:25:48 11 A. That's correct. It's as if -- so we -- we tested our
11:25:51 12 technology of it, you know, bending, you know, over -- in
11:26:00 13 actual -- you know, it doesn't actually make a difference
11:26:04 14 whether it's a flat display or curved display. From our
11:26:08 15 point of view that we are able to bend our sensor, the
11:26:14 16 difference would be we extend the viewable area. If it was
11:26:18 17 a curved display, we extend the viewable area to the edge.

11:26:22 18 Q. Okay. Let me see if I understand now.

11:26:28 19 So -- so the work you were doing up to the time
11:26:30 20 you filed the '311 patent was with a flat display, correct?

11:26:36 21 A. That's correct.

11:26:36 22 Q. And you made touch sensors that went from one edge of
11:26:43 23 the touch display on the top to the other edge, correct?

11:26:47 24 A. One edge -- one edge of the display to the other edge.

11:26:56 25 Q. Yeah.

11:26:57 1 A. You mean the flat area?

11:26:59 2 Q. The flat area.

11:27:00 3 A. That and -- yes, but also over the edge, as well.

11:27:05 4 Q. Okay. And am I correct that prior to the time you
11:27:12 5 filed the '311 patent, you did not have access to a curved
11:27:17 6 display, correct?

11:27:18 7 A. Yes.

11:27:19 8 Q. And so you never made a touch sensor which covered the
11:27:30 9 top of a display and the side of a display, correct?

11:27:35 10 ATTORNEY: Objection, form.

11:27:38 11 A. It -- I mean, our sensor -- we did not have the curved
11:27:55 12 display.

11:27:55 13 Q. Well, you were making touch sensors that were
11:27:59 14 flexible --

11:28:00 15 A. Yes.

11:28:01 16 Q. -- when you were -- when you were working for Atmel in
11:28:05 17 England, right?

11:28:06 18 A. They were -- they were flexible.

11:28:10 19 Q. Okay. But -- but looking back at it, it's true, isn't
11:28:14 20 it, that the touch sensors that you were working on in
11:28:18 21 England for Atmel were flexible enough that you could have
11:28:23 22 wrapped them around the edges of a flat display?

11:28:30 23 A. The designs that we had might not have been optimized
11:28:36 24 for that. So we -- we didn't further optimize it. But it
11:28:42 25 was flexible.

11:28:42 1 Q. I'm not asking if you optimized it. I'm asking you if,
11:28:50 2 looking back at it now, given the work you did at Atmel
11:28:56 3 with flexible touch sensor substrates, that, in fact, the
11:29:08 4 flexible touch sensor substrates that you were working on
11:29:11 5 in England with Atmel, you could have done the same thing
11:29:17 6 that you did later on, as we've discussed in the context of
11:29:21 7 Exhibit 18, and taken that flexible display and extended it
11:29:27 8 beyond the edges of the flat display?

11:29:34 9 It may not have been as optimum, but it would have
11:29:39 10 worked?

11:29:40 11 A. We did not test the functionality, but it is -- it is
11:29:45 12 probable.

11:29:46 13 Q. At some point, did you consult for a company, Houlihan
11:29:54 14 Lokey?

11:30:04 15 A. Houlihan Lokey? Yes. Yes, I did.

11:30:09 16 Q. Do you recall speaking with a patent attorney working
11:30:14 17 on behalf of the company regarding the filing of the
11:30:18 18 application that led to the '311 patent?

11:30:23 19 A. To the patent attorney. At the time?

11:30:31 20 Q. Yes, sir.

11:30:31 21 A. Speaking to them at the time?

11:30:36 22 No, I -- I could not remember. It's too far back.

11:30:42 23 Q. Mr. Yilmaz, earlier today, you discussed some of the
11:30:48 24 prototypes that you were involved with in creating on
11:30:54 25 behalf of Atmel's customers, specifically Nokia.

11:30:57 1 Do you remember that?

11:30:58 2 A. Yes.

11:31:00 3 ATTORNEY: And, for the record, this is the
11:31:01 4 document marked as Yilmaz 18.

11:31:09 5 Q. Do you remember talking about the project that's
11:31:11 6 discussed in the first paragraph of this email that we're
11:31:14 7 looking at on the screen right now?

11:31:17 8 A. Today?

11:31:18 9 Q. Yes.

11:31:19 10 A. Yes.

11:31:19 11 Q. The project that is being discussed in this first
11:31:29 12 paragraph is the Jolle project. Would that be fair to say?

11:31:32 13 A. Yes.

11:31:32 14 Q. And how can you tell?

11:31:37 15 A. That was the curved cover that we were working on.

11:31:47 16 Q. Do you see in the middle part of the screen right now
11:31:53 17 there's some information there about who sent the email and
11:31:58 18 what time, subject, and then the attachments to the email?

11:32:02 19 Do you see that?

11:32:03 20 A. Yes.

11:32:03 21 Q. Under the -- well, next to the term "attachments," what
11:32:11 22 do you see there?

11:32:12 23 A. Jolle glass touch, et cetera, zip file.

11:32:15 24 Q. I'd like to ask you about the number that appears right
11:32:20 25 after Jolle glass touch. I'll read it as 20110428.

11:32:27 1 Do you see that?

11:32:28 2 A. Yes.

11:32:28 3 Q. Does that indicate to you that the date of the -- at
11:32:34 4 least the file that's being attached is, let's say,
11:32:40 5 April 28th, 2011?

11:32:42 6 A. Yes.

11:32:44 7 Q. I'd like to show you a document that has a Bates stamp
11:32:47 8 of Yilmaz_00000002. And I'll bring it up on the screen
11:32:59 9 right now.

11:33:13 10 A. Okay.

11:33:13 11 Q. Mr. Yilmaz, do you see what I'm looking at on the
11:33:17 12 screen right now? It's in Adobe Acrobat. It's a document
11:33:21 13 with some blue text and some black text?

11:33:25 14 A. Yes.

11:33:25 15 Q. Mr. Yilmaz, you now have some control.

11:33:28 16 And I'd like to ask you first, do you recognize
11:33:30 17 this document?

11:33:31 18 A. Yes.

11:33:31 19 Q. What is it?

11:33:32 20 A. It is a data sheet we created to give to customers.

11:33:41 21 Q. So, Mr. Yilmaz, do you recognize the same document on
11:33:45 22 the screen right now, just in native format?

11:33:48 23 A. Yes.

11:33:52 24 Q. I'd like to scroll down to a particular portion of the
11:33:54 25 document and just ask you to confirm something. And, for

11:33:59 1 the record, I am scrolling down to Page 2 of the PDF. And
11:34:22 2 I'll zoom in right now.

11:34:24 3 And ask you, Mr. Yilmaz, to take a look at the
11:34:29 4 description -- or, rather, the text underneath the words,
11:34:34 5 Product Description and Applications, which should be
11:34:38 6 roughly near the middle of your screen.

11:34:40 7 Do you see that?

11:34:41 8 A. Yes.

11:34:41 9 Q. Can you just take a moment to read through that
11:34:44 10 paragraph and let me know what it's saying.

11:34:50 11 A. So it's describing roll-to-roll process with PET
11:35:22 12 substrates. It is describing that it can be bent or
11:35:29 13 laminated on curved surfaces. 2.5D product designs. Yeah.

11:35:45 14 Q. My question to you now is, what exactly does 2.5D mean?
11:35:50 15 If you could give me a quick answer?

11:35:54 16 A. Right. 2.5D, as opposed to 3D, is something -- a
11:36:02 17 surface that you can laminate without stretching -- or,
11:36:12 18 actually, let me try this way.

11:36:14 19 It's a -- it's a curvature in one direction, as
11:36:23 20 opposed to multiple directions where you would have, like
11:36:28 21 on a ball, for example, where you can laminate a sheet.

11:36:33 22 Q. Was the Jolle project you were working on with Nokia a
11:36:42 23 2.5D design or 3D?

11:36:47 24 A. 2.5.

11:36:48 25 Q. Mr. Yilmaz, I'd like to show you another document,

11:36:51 1 which I'll mark as Yilmaz Exhibit 32.

11:36:55 2 I'd like to you take a look at this document, sir.

11:37:00 3 And I'll share control with you right now, and ask you once
11:37:04 4 you know, what is it?

11:37:08 5 A. Yeah. This would have been number of sensors we
11:37:25 6 delivered for a particular project and a particular
11:37:28 7 customer.

11:37:29 8 Q. Could I ask you to take a look at Row 5, which is
11:37:35 9 Priority 1 in Column A?

11:37:38 10 A. Yes.

11:37:38 11 Q. Do you see that?

11:37:40 12 Do you see in Column C on Row 5, the project name
11:37:44 13 is Jolle?

11:37:45 14 A. Yes.

11:37:45 15 Q. So this row relates to the Jolle project that you were
11:37:50 16 discussing earlier today in -- in the deposition?

11:37:55 17 A. That's correct.

11:37:55 18 Q. And do you recall saying that prototypes were, in fact,
11:38:01 19 fabricated and delivered in the Jolle project?

11:38:05 20 A. Yes.

11:38:06 21 Q. Can you just take a look at the rest of the information
11:38:09 22 in the row and just confirm that for me. And let me know
11:38:13 23 if your answer changes.

11:38:16 24 A. Sorry. Can you ask your question again?

11:38:19 25 Q. Sure. Can you just confirm what you just said, after

11:38:24 1 having looked at the rest of the information in Row 5 of
11:38:28 2 the Excel document?

11:38:31 3 A. Yes. Yes, we have got layouts, we have got number of
11:38:40 4 samples that we are shipping. Layout complete, mask
11:38:46 5 delivery. And this is the shipment date.

11:38:49 6 Q. Under Column F, which has I believe a label CAD
11:38:55 7 Engineer, you can see the name Carl.

11:38:57 8 Do you see that?

11:38:57 9 A. Yes.

11:38:58 10 Q. Who is Carl?

11:39:00 11 A. This is a CAD engineer in the U.K.

11:39:08 12 Q. Does he have a last name?

11:39:10 13 A. Carley.

11:39:13 14 Q. Carl Carley?

11:39:16 15 A. Yes.

11:39:16 16 Q. Did he work for Nokia?

11:39:17 17 A. No. Atmel.

11:39:24 18 Q. Carl Carley worked for Atmel?

11:39:27 19 A. That's correct.

11:39:27 20 Q. And, just for the record, the term "CAD," C-A-D, what
11:39:39 21 does that stand for?

11:39:40 22 A. Computer-aided design.

11:39:44 23 Q. I'd like to show you that document -- or, rather, let
11:39:47 24 me first just say, let me pull up on the screen what's been
11:39:53 25 Bates stamped as Yilmaz 21.

11:39:55 1 So, Mr. Yilmaz, I've pulled up that native
11:39:59 2 document -- I've opened it, rather, in a free step file
11:40:04 3 viewer called Step Viewer.

11:40:07 4 Well, first, let me ask a foundational question.

11:40:10 5 Do you know what a step file is?

11:40:13 6 A. Yes.

11:40:13 7 Q. And what is a step file?

11:40:15 8 A. It's a -- a 3D file, a 3D design file, one of the
11:40:21 9 formats.

11:40:22 10 Q. Have you -- or, rather, have you seen this -- have you
11:40:31 11 seen this document before?

11:40:32 12 A. Yes.

11:40:32 13 Q. And can you tell me when you have seen the document
11:40:35 14 before?

11:40:35 15 A. You provide it to me. Yes, I believe that was the
11:40:42 16 case.

11:40:42 17 Q. And do you know if this was -- this step file was
11:40:46 18 created by Mr. Carley?

11:40:47 19 A. I'm not sure. I think part of it might have been. Or
11:40:58 20 at least co-created.

11:41:00 21 Q. Starting from the bottom, actually, with Jolle Display
11:41:07 22 Foam, can you just tell me what that is? What does it
11:41:11 23 refer to?

11:41:11 24 A. It is the foam that seals this piece to the display.
11:41:20 25 So there's the seal between this piece and the display.

11:41:23 1 Q. And by "this piece," what do you mean?

11:41:29 2 A. You know, what we are seeing here. This is the touch
11:41:36 3 panel.

11:41:36 4 Q. Okay. Moving to this layer where -- where my cursor is
11:41:48 5 hovering, where it reads, Jolle touch, is that assembly,
11:41:54 6 A-S-S-Y?

11:41:54 7 A. It is.

11:41:54 8 Q. I'm going to expand that just so that you can see what
11:41:57 9 it is.

11:41:58 10 A. Yeah.

11:41:59 11 Q. Can you just tell me what the Jolle Touch Assembly
11:42:04 12 layer refers to?

11:42:05 13 A. That would be the touch sensor. It will be the FPC.
11:42:13 14 Yeah. It's -- it's the sensor and the FPC, and it looks
11:42:17 15 like there's a connector, as well, in there.

11:42:20 16 Q. What is the FPC?

11:42:22 17 A. FPC is another -- it's basically a connect --
11:42:36 18 connecting piece of flexible printed circuit board between
11:42:48 19 the touch sensor and could be the motherboard, for example.

11:42:51 20 Q. Okay. And I'll come back to -- to this layer. I'd
11:42:56 21 like to first ask you about the first layer in the list,
11:42:59 22 Jolle Glass Window.

11:43:02 23 A. Right.

11:43:03 24 Q. Do you see that?

11:43:03 25 A. Yes.

11:43:03 1 Q. Can you tell me what the Jolle Glass Window is?

11:43:08 2 A. It's the -- it's the cover glass.

11:43:11 3 Q. So I've just hovered my mouse cursor over Jolle Glass
11:43:20 4 Window. You can see the substantial portion of the model
11:43:23 5 just lit up in neon blue. The part that lit up in neon
11:43:27 6 blue, is that the Jolle Glass Window layer?

11:43:30 7 A. Yes.

11:43:30 8 Q. Okay. I'm going to hide the board-to-board connector
11:43:37 9 now. And next I'm going to ask you about the -- the Jolle
11:43:43 10 Touch Sensor Top Flex Element, where my mouse cursor has
11:43:50 11 hovered.

11:43:50 12 And, again, sir, if you -- at any point you want
11:43:53 13 to actually take control of my computer and, you know,
11:43:58 14 manipulate it yourself, just let me know. Can you tell me
11:44:01 15 what the Jolle Touch Sensor Top Flex Element is? In the
11:44:07 16 layout, it's the Jolle Touch Sensor Atmel. Do you see
11:44:07 17 that.

11:44:07 18 A. Yes.

11:44:08 19 Q. Can you tell me what that is?

11:44:11 20 A. That's the touch sensor.

11:44:13 21 Q. By "touch sensor," do you mean the PET film on which
11:44:24 22 the copper metal mesh lines are laminated on both sides?

11:44:28 23 A. Yes.

11:44:28 24 Q. I'm going to move my mouse to a portion of the layout.
11:44:37 25 Can you see where my mouse is hovering right here?

11:44:40 1 A. Yes.

11:44:40 2 Q. Do you see that there is, from your perspective, a
11:44:44 3 north/south line extending from where my mouse cursor is
11:44:49 4 hovering to the bottom of the model where my mouse is now
11:44:53 5 hovering?

11:44:53 6 A. Right. Yes.

11:44:54 7 Q. The side to the left of that line we discussed, is that
11:45:02 8 also part of the touch sensor?

11:45:04 9 A. Yes.

11:45:14 10 Q. Okay. Same question with the line on the other side of
11:45:18 11 the model where my mouse is hovering, which is, you know,
11:45:21 12 just -- it's asymmetrical design. But same question, is
11:45:26 13 the part to the right of the line where my mouse is
11:45:29 14 hovering now part of the touch sensor, as well, sir?

11:45:32 15 A. Yes.

11:45:32 16 Q. This line right here where my mouse is hovering, along
11:45:41 17 with the line that we just discussed on the other side of
11:45:44 18 the model where my mouse is hovering now, is that an
11:45:47 19 indication of where the radius of curvature of the design
11:45:51 20 begins, rather, on the left and right sides?

11:45:53 21 A. I believe so.

11:45:58 22 Q. Mr. Yilmaz, I'm also going to pull up something called
11:46:05 23 a GDS file for you in a moment.

11:46:07 24 But, first, can you tell me, do you know what a
11:46:10 25 GDS file is?

11:46:11 1 A. Yes. It's -- it's a file used by Cadence Software.

11:46:19 2 It's mainly used for semiconductor design, but it is also

11:46:26 3 used for metal mesh design by us.

11:46:29 4 Q. So, Mr. Yilmaz, looking at the screen now, can you

11:46:35 5 confirm for me that this is a -- let's say a GDS layout?

11:46:39 6 A. Yes, it is.

11:46:41 7 Q. And was this the GDS layout used for the fabrication

11:46:51 8 for the prototypes in the Jolle project?

11:46:54 9 A. Yes.

11:46:54 10 Q. How do you know that?

11:46:55 11 A. This was the Jolle1UP GDS file that we used to create

11:47:04 12 the touch sensors.

11:47:05 13 Q. And can you just tell me what we're looking at here on

11:47:09 14 the screen?

11:47:09 15 A. This is a portion of the touch sensor -- touch sensor

11:47:19 16 area. We are looking at the mesh lines in green and cut.

11:47:25 17 Q. The mesh lines are -- well, tell me, can you recall the

11:47:31 18 material used in the mesh lines for the Jolle project?

11:47:34 19 A. Yes. It would be copper.

11:47:39 20 Q. So, earlier, you were saying that one of the

11:47:43 21 technological, let's say, innovations of the '311 patent

11:47:53 22 was to have the metal mesh sensor configured to go over

11:47:58 23 the -- the -- the edges of the display. Is that -- is that

11:48:02 24 right?

11:48:03 25 A. Yes.

11:48:03 1 Q. Do you remember approximately when in the 2011 time
11:48:10 2 frame or 2010 time frame, or whatever time frame, that you,
11:48:14 3 Mr. Laub, or Mr. Shaikh actually came up with that concept?
11:48:24 4 Would it have been, let's say, before the company started
11:48:28 5 contemplating what it called the 2.5D product designs?

11:48:40 6 Mr. Yilmaz, speaking specifically with the month
11:48:49 7 January 2011 in mind, at the time had you or Mr. Laub or
11:48:59 8 Mr. Shaikh already been working on 2.5D designs, as we've
11:49:05 9 discussed?

11:49:06 10 A. With the Jolle project, we were working on the 2.5D
11:49:14 11 designs.

11:49:14 12 Q. Do you remember approximately when you, Mr. Shaikh, or
11:49:20 13 Mr. Laub first began working on the Jolle project?

11:49:22 14 A. I think it would have been early 2011.

11:49:33 15 Q. And bringing your attention back to the prototypes that
11:49:37 16 Atmel eventually created for the Jolle project, do you
11:49:41 17 recall approximately what time Atmel received those
11:49:44 18 prototypes?

11:49:48 19 A. I think it would have been around July or August.

11:49:51 20 Q. Do you recall the prototypes being, let's say,
11:49:59 21 functional?

11:50:11 22 A. I mean, they -- they would have been.

11:50:27 23 Q. And why would you think that?

11:50:29 24 A. Personally, I don't recall testing them. Yeah.

11:50:44 25 Q. Mr. Yilmaz, speaking again specifically about the

11:50:50 1 prototypes that you testified you received in the July 2011
11:50:56 2 time frame, do you have any reason to believe that they
11:51:00 3 would not be functional, let's say, for, you know, sensing
11:51:09 4 touch on the display panel around the module?

11:51:14 5 A. No.

11:51:14 6 Q. You remember the -- the series of CAD drawings you were
11:51:21 7 shown, Mr. Yilmaz?

11:51:22 8 A. Yes.

11:51:22 9 Q. And I think you described that that Jolle had -- was --
11:51:30 10 consisted of a curved glass under which was a curved
11:51:38 11 sensor; is that correct?

11:51:39 12 A. That's correct.

11:51:40 13 (Videoclip ends.)

11:51:44 14 THE COURT: Does that complete this witness by
11:51:46 15 deposition, counsel?

11:51:48 16 MS. FAIR: Yes, Your Honor.

11:51:48 17 THE COURT: All right. Ladies and gentlemen of
11:51:52 18 the jury, it's about 10 minutes until noon. I'm advised by
11:51:55 19 the clerk's office that your lunch is waiting for you in
11:51:58 20 the jury room. So we're going to break for lunch at this
11:52:01 21 time.

11:52:03 22 I'm going to ask you to take your juror notebooks
11:52:05 23 with you to the jury room over the lunch break. Please
11:52:09 24 follow all the instructions I've given you, of course,
11:52:12 25 including the one not to discuss the case with each other

11:52:15 1 or anyone else in any way.

11:52:16 2 It is about eight minutes until noon. We'll try
11:52:22 3 to reconvene promptly at 1:00 o'clock.

11:52:25 4 The jury is excused for lunch at this time.

11:52:27 5 COURT SECURITY OFFICER: All rise.

11:52:29 6 (Jury out.)

11:52:29 7 THE COURT: Counsel, so far, we've used two hours
11:53:07 8 and 50 minutes trial time this morning.

11:53:09 9 If you need further breakdowns, you can get them
11:53:15 10 from my staff over the lunch break. Until 1:00 p.m. when
11:53:19 11 we reconvene, we stand in recess.

11:53:22 12 COURT SECURITY OFFICER: All rise.

11:53:23 13 (Recess.)

01:06:51 14 (Jury out.)

01:06:52 15 COURT SECURITY OFFICER: All rise.

01:06:57 16 THE COURT: Be seated, please.

01:09:50 17 Counsel, I understand you've got recent updates on
01:09:57 18 your time from my staff. I also understand there may need
01:10:00 19 to be a correction in the record with regard to deposition
01:10:04 20 exhibits that were put forward earlier; is that correct,
01:10:09 21 Ms. Fair?

01:10:10 22 MS. FAIR: That's correct, Your Honor.

01:10:11 23 THE COURT: Would you go to the podium, please?

01:10:13 24 MS. FAIR: Yes, sir.

01:10:20 25 THE COURT: Tell me what we need to do and what we

01:10:22 1 have.

01:10:23 2 MS. FAIR: I misaligned up which PTX numbers go
01:10:27 3 with the Yilmaz exhibit number from the deposition, and so
01:10:30 4 I just wanted to get it corrected in the record since I
01:10:33 5 misspoke earlier.

01:10:34 6 THE COURT: All right.

01:10:34 7 MS. FAIR: Okay.

01:10:35 8 THE COURT: Let's go ahead and correct the record.

01:10:36 9 MS. FAIR: Thank you.

01:10:37 10 Yilmaz Exhibit No. 4 is PTX-003.

01:10:43 11 Yilmaz Exhibit 18 is PTX-701.

01:10:50 12 Yilmaz Exhibit 31 is PTX-702.

01:10:56 13 Yilmaz Exhibit 32 is PTX-690.

01:11:02 14 Yilmaz Exhibit 33 is PTX-692.

01:11:09 15 And Yilmaz Exhibit 34 is PTX-694.

01:11:14 16 And those are the exhibits that Plaintiff offered
01:11:18 17 through Mr. Yilmaz's deposition testimony.

01:11:21 18 THE COURT: All right. Any objection or problem
01:11:25 19 with that, Mr. Haslam?

01:11:26 20 MR. HASLAM: No, Your Honor.

01:11:30 21 THE COURT: All right. Is Plaintiff prepared to
01:11:32 22 call their next witness?

01:11:34 23 MR. FENSTER: We are, Your Honor, Mr. Credelle.

01:11:37 24 THE COURT: All right. Let's bring in the jury,
01:12:13 25 please.

01:12:13 1 COURT SECURITY OFFICER: All rise.

01:12:13 2 (Jury in.)

01:12:14 3 THE COURT: Welcome back from lunch, ladies and
01:12:15 4 gentlemen. Please have a seat.

01:12:16 5 Plaintiff, call your next witness.

01:12:24 6 MR. FENSTER: Your Honor, the Plaintiff calls
01:12:27 7 Mr. Thomas Credelle.

01:12:28 8 THE COURT: All right. Mr. Credelle will come
01:12:30 9 forward and be sworn, please.

01:12:49 10 (Witness sworn.)

01:12:50 11 THE COURT: If you'll come around, sir, and have a
01:12:52 12 seat on the witness stand.

01:13:02 13 THE WITNESS: Thank you.

01:13:03 14 THE COURT: All right. Mr. Fenster, you may
01:13:10 15 proceed with direct examination.

01:13:11 16 MR. FENSTER: Thank you, Your Honor.

01:13:11 17 Good afternoon, ladies and gentlemen.

01:13:11 18 THOMAS CREDELLE, PLAINTIFF'S WITNESS, SWORN

01:13:11 19 DIRECT EXAMINATION

01:13:15 20 BY MR. FENSTER:

01:13:15 21 Q. (By Mr. Fenster) Good afternoon, Mr. Credelle.

01:13:16 22 A. Good afternoon.

01:13:17 23 Q. Could you please introduce yourself to the jury?

01:13:19 24 A. My name is Thomas Credelle.

01:13:20 25 Q. And are you married, Mr. Credelle?

01:13:22 1 A. Yes, I am. In fact, I celebrate my 40th wedding
01:13:27 2 anniversary in two months. We hope COVID ends so we can
01:13:32 3 actually go someplace.

01:13:33 4 I have two boys that are age 36 and 38. I have
01:13:37 5 one granddaughter and another one on the way in about a
01:13:40 6 month.

01:13:41 7 Q. And were you retained as an expert witness in this
01:13:43 8 case?

01:13:43 9 A. I was.

01:13:48 10 Q. By whom?

01:13:49 11 A. I was retained by Solas OLED.

01:13:50 12 Q. And what were you asked to do? What is your role in
01:13:53 13 this case?

01:13:54 14 A. So my role was to analyze these three patents that are
01:13:59 15 in this case. I was asked to look at the details of the
01:14:02 16 patent. I was asked to look at Samsung documents and
01:14:07 17 products to match the claims of the asserted patents to the
01:14:13 18 Samsung products.

01:14:14 19 Q. And are you being compensated for your work in this
01:14:17 20 case?

01:14:17 21 A. I am.

01:14:18 22 Q. How so?

01:14:19 23 A. I'm paid \$400 an hour for my consulting work.

01:14:22 24 Q. And is that your normal hourly rate?

01:14:24 25 A. Yes, it is.

01:14:25 1 Q. And does your compensation depend in any way on the
01:14:28 2 outcome of this case?

01:14:28 3 A. Absolutely not.

01:14:29 4 Q. Did you prepare some presentation slides to help aid
01:14:36 5 your presentation to the jury today?

01:14:38 6 A. Yes, I did.

01:14:39 7 Q. And do you have the clicker right there with you?

01:14:41 8 A. I do.

01:14:42 9 Q. Terrific.

01:14:43 10 Would you please tell the jury a little bit about
01:14:45 11 the experience that you had that lends -- that lends to
01:14:49 12 your expertise in display technology?

01:14:50 13 A. Yes, I think I've been very fortunate that when I got
01:14:54 14 out of school that I got into a field that was very
01:14:57 15 fascinating and has changed over the past now 50 years,
01:15:02 16 displays.

01:15:03 17 I worked in all aspects of displays. The new
01:15:09 18 technology was going from the old CRTs -- some of you are
01:15:15 19 old enough to remember the old boxy tubes -- to the more
01:15:18 20 modern displays we have today.

01:15:20 21 I worked on many aspects of that in R&D for 20
01:15:25 22 years. And I decided I wanted to get more into the action
01:15:29 23 and went to work for product companies that develop
01:15:32 24 products that use new display technology.

01:15:32 25 I also worked in touch, touch technology.

01:15:35 1 So it runs a broad spectrum. My experience is
01:15:39 2 also with different companies, as I'll describe.

01:15:42 3 Q. Okay. And what do you do today?

01:15:44 4 A. Today, I'm a consultant. I do consulting, some
01:15:50 5 technical consulting and some business consulting for
01:15:53 6 companies. But I do a lot of patent analysis like I was
01:15:59 7 retained to do in this case.

01:16:00 8 Q. And do you have any patents yourself? Are you a named
01:16:03 9 inventor on any patents?

01:16:04 10 A. Yes. I'm proud to say that I've earned over 80 U.S.
01:16:07 11 patents, quite a bit more foreign patents. But this
01:16:13 12 is over the span of my career. It wasn't just in the
01:16:17 13 beginning. It was throughout my whole career.

01:16:19 14 I pride myself in being inventive and solving -- a
01:16:25 15 problem solver, so that resulted in quite a few patents.

01:16:28 16 Q. Can you tell the jury about your educational
01:16:30 17 background?

01:16:30 18 A. Yes. I received my Bachelor of Science degree in
01:16:34 19 electrical engineering from Drexel University in 1969. I
01:16:37 20 graduated at the top of my class and was given a full
01:16:43 21 scholarship to MIT.

01:16:44 22 And I spent a year at MIT and got my Master's
01:16:50 23 degree, also in electrical engineering. But my emphasis
01:16:53 24 was electro-optics and solid-state physics and solid-state
01:16:56 25 materials. And so I think it really prepared me well for

01:16:59 1 the career that I eventually fell into.

01:17:01 2 Q. And can you tell the jury a little bit about your
01:17:03 3 real-world work experience related to touch sensor and
01:17:06 4 display technology?

01:17:07 5 A. Yes, be happy to.

01:17:08 6 So the first company I joined was RCA. And in the
01:17:13 7 '70s, RCA was the leading company in television. They
01:17:17 8 actually invented color television. They had a very large
01:17:21 9 research department that was looking at new products that
01:17:24 10 RCA would hopefully introduce in the next five to 10 years.

01:17:28 11 One of those products -- projects was -- we used
01:17:32 12 to call them flat-panel displays to distinguish them from
01:17:36 13 the big CRTs, but we now call it displays.

01:17:39 14 In those days, the technology didn't exist. We
01:17:41 15 had to figure out how do we make a display that's only an
01:17:45 16 inch thick that you can hang on the wall, and that was what
01:17:48 17 the dream of the CEO was, of RCA.

01:17:52 18 And so I worked on that project doing development
01:17:54 19 myself and leading a group. We developed some of the first
01:17:58 20 working models of flat displays, very small, but we were
01:18:03 21 very proud of the fact that we were able to make this with
01:18:06 22 our technology and our ideas.

01:18:08 23 Q. And --

01:18:09 24 A. After that, I joined General Electric, or GE actually
01:18:13 25 bought RCA about the time I moved. And they were working

01:18:16 1 on also flat displays, but this time for cockpits. GE had
01:18:23 2 a big business in supplying electronics for airplanes, and
01:18:26 3 they wanted to replace, again, the bulky displays that you
01:18:31 4 might have seen in old cockpits in movies with these sleek,
01:18:31 5 flat displays, which weigh less and give better picture
01:18:31 6 quality.

01:18:35 7 So we developed that technology, and that's flying
01:18:39 8 in airplanes still today.

01:18:41 9 Q. What did you do after GE?

01:18:43 10 A. So I spent 20 years in R&D. And I was kind of itching
01:18:48 11 to get into product development. And there was a small
01:18:51 12 company in California called Apple Computer that was
01:18:54 13 looking to build laptop displays -- or I should say laptop
01:18:59 14 computers with flat displays.

01:19:01 15 I was hired to run that group, and our job was to
01:19:04 16 look at the technology that could be appropriate for
01:19:06 17 Apple's PowerBooks -- that's what they called them -- and
01:19:09 18 we introduced -- introduced those products. One of the
01:19:13 19 first companies to introduce light-weight laptops. I guess
01:19:17 20 with Apple, the rest is history. We all know about their
01:19:21 21 great products that come after that.

01:19:22 22 Q. And what about after Apple?

01:19:24 23 A. So after Apple, some people asked me, why did you
01:19:27 24 leave, but I had the opportunity to join a group at
01:19:30 25 Motorola that was actually going to manufacture flat-panel

01:19:33 1 displays or displays in the U.S. And I was happy about
01:19:36 2 that because the business was kind of moving into Asia.
01:19:40 3 And Motorola made a major commitment; they hired me to help
01:19:43 4 with the engineering and marketing of this new product.

01:19:45 5 I also was quite involved with the cell phone
01:19:48 6 group of Motorola. Obviously, they're well-known for
01:19:52 7 making cell phones, and they needed help on displays that
01:19:56 8 would go into cell phones, the new models, even including
01:20:02 9 Organic Light-Emitting Diodes, which we'll hear about
01:20:03 10 later -- later today.

01:20:04 11 Q. Did you -- before we go on to the next slide, did you
01:20:07 12 gain any experience with patents working at any of these
01:20:12 13 companies?

01:20:12 14 A. So, yeah, that's a great question. I -- as a young
01:20:15 15 engineer coming out of MIT, I didn't know much about
01:20:18 16 patents. I knew about patents, about the process and the
01:20:22 17 value. And RCA put a lot of values in patents. I think
01:20:25 18 they made a lot of money with their patents and protecting
01:20:28 19 their -- protecting their ideas.

01:20:30 20 The patent attorneys there gave us training as
01:20:32 21 young engineers on how to write down and how to document
01:20:36 22 patents and how to think about patents and their value. So
01:20:38 23 it was really great training for me as a young engineer to
01:20:42 24 be able to kind of understand this aspect of my job.

01:20:46 25 So if I had a good idea, we would discuss it, we

01:20:50 1 would write it down, and they would file patents. And I
01:20:52 2 saw the value to RCA, that these were protecting their
01:20:55 3 business against competition. And at some point, if they
01:20:58 4 want to license that technology, that was revenue that
01:21:01 5 they -- that they got from those patents.

01:21:03 6 So throughout my whole career, I've worked at
01:21:07 7 other start-up companies where their idea was licensing,
01:21:12 8 and so patents are very important. You really need to have
01:21:15 9 good, solid protection for your business. It's probably
01:21:18 10 more true of small companies than it is for big companies.

01:21:21 11 Q. Mr. Credelle --

01:21:22 12 THE COURT: Mr. Credelle, pull the microphone a
01:21:24 13 little closer to you, please.

01:21:26 14 THE WITNESS: Oh, I'm sorry.

01:21:26 15 THE COURT: I want to make sure everybody in the
01:21:28 16 room has a chance to hear you.

01:21:30 17 Go ahead, counsel.

01:21:31 18 MR. FENSTER: Thank you, Your Honor.

01:21:31 19 Q. (By Mr. Fenster) Mr. Credelle, did you gain any
01:21:34 20 real-world experience designing and developing touch
01:21:36 21 sensors?

01:21:36 22 A. Yes, as a matter of fact one of the start-up companies
01:21:39 23 I joined about five years ago, maybe six years ago, was a
01:21:44 24 small company called Innova Dynamics. Their technology was
01:21:50 25 metal nanowires. Kind of a metal -- a metal sensor, and

01:21:54 1 they were fabricating these metal nanowires.

01:21:57 2 I was in charge of engineering, the VP of
01:22:00 3 engineering, to develop prototypes and work with the
01:22:02 4 production people in Taiwan to actually fabricate
01:22:08 5 prototypes using this new technology.

01:22:10 6 So part of my responsibility was to understand the
01:22:14 7 competition for this new technology, whether it's metal
01:22:18 8 mesh or you heard about ITO, indium tin oxide, and compare
01:22:24 9 that to the new technology and look at how to manufacture
01:22:27 10 them and then talk to customers about their needs.

01:22:30 11 So that was a very intense three years working on
01:22:34 12 touch sensors that gave me a lot of background, which
01:22:36 13 actually helped me in understanding the details of this
01:22:39 14 case.

01:22:39 15 Q. Thank you, Mr. Credelle.

01:22:43 16 MR. FENSTER: And, Your Honor, at this time, I'd
01:22:44 17 like to offer Mr. Credelle as an expert in the field of
01:22:50 18 OLED and AMOLED display and touch sensor technology.

01:22:52 19 THE COURT: Is there objection?

01:22:53 20 MR. HASLAM: No objection, Your Honor.

01:22:55 21 THE COURT: Without objection, the Court will
01:22:58 22 recognize the witness as an expert in those designated
01:23:00 23 fields.

01:23:00 24 Please continue.

01:23:02 25 Q. (By Mr. Fenster) Mr. Credelle, can you give the jury

01:23:05 1 kind of an overview of the broad topics that we'll be
01:23:09 2 covering today?

01:23:09 3 A. Sure. As I mentioned, and you've heard, I think, in
01:23:16 4 the opening, there are three patents in this case, the
01:23:20 5 '311, the '450, and the '338. I will start with the '311.
01:23:25 6 I think it's fresh in our minds because we heard from the
01:23:29 7 inventors of the '311 this morning. So, hopefully. It
01:23:32 8 will tie together, and I'll go into the patents that talk
01:23:35 9 about OLED technology.

01:23:36 10 Q. Can you tell the jury some of the materials that you
01:23:40 11 reviewed in preparing your -- and doing your analysis in
01:23:45 12 this case?

01:23:46 13 A. Yes, this is a really long list. Actually, it's a lot
01:23:49 14 of pages.

01:23:50 15 Starting with the patents, of course, that's Step
01:23:53 16 No. 1. Any person with my assignment needs to really
01:24:00 17 understand the details of the patent. That's the
01:24:04 18 specification and most importantly the claims.

01:24:06 19 There's documentation when these -- when these
01:24:11 20 patents are filed. I think we heard something about this
01:24:13 21 yesterday, that they're filed, and there's a lot of back
01:24:15 22 and forth discussion before it gets actually issued as a
01:24:18 23 patent. That documentation is informative. I can learn
01:24:22 24 things from those file histories, they're called. I
01:24:25 25 studied those.

01:24:26 1 And then the documents about the invention of the
01:24:28 2 '311. I think you heard this morning from one of the
01:24:31 3 inventors personally, that he -- how he invented -- what
01:24:36 4 the process was and then when is the patent filed and such.
01:24:41 5 I studied that.

01:24:42 6 And then several documents that are from Samsung.
01:24:48 7 I'll put them up on the screen. Then I'll talk about them.
01:24:51 8 Deposition testimony by Samsung experts, witnesses.

01:24:56 9 Samsung has documents called panel design reviews.
01:24:59 10 This is basically -- think of it as a blueprint for how to
01:25:04 11 make an OLED panel or a touch sensor. All the details that
01:25:07 12 an engineer would need to know or the factory engineer
01:25:10 13 would need to know how to make the product. How big is it,
01:25:13 14 thick is it, those kind of details.

01:25:15 15 The graphic design files are -- I think we saw
01:25:20 16 some maybe this morning, but the graphic design files are
01:25:23 17 actual blueprints. So these are files that would allow a
01:25:28 18 machine to actually make the layers that are in the recipe.

01:25:31 19 Q. And are these -- are you talking about the documents
01:25:33 20 describing the accused Samsung phones?

01:25:35 21 A. Yes, yes, I should have made that clear. So for each
01:25:38 22 of these -- these list of documents, there's a set of these
01:25:42 23 documents for each phone. And there are a lot of phones,
01:25:45 24 so I've looked at a lot of documents.

01:25:47 25 The drawing files are mechanical drawings, so how

01:25:51 1 big is it? Is there any mechanical frame? How is it
01:25:54 2 mounted together? The drawing files help me understand
01:25:57 3 those points. If it was a shaped curve, what's the shape
01:26:02 4 of that curve?

01:26:03 5 And, finally, product specification documents,
01:26:05 6 which starts out with some basic specification, and then it
01:26:08 7 has two to 3,000 pages of documentation of different
01:26:13 8 testing and different specifications for products.

01:26:16 9 Basically, everything down to the screws that are
01:26:19 10 used in putting together the product are in the
01:26:21 11 specification document.

01:26:22 12 Not that I needed to read all 3,000 pages, but
01:26:27 13 there was documents -- there was information in there that
01:26:29 14 was very useful for me to understand how the phone is made,
01:26:31 15 how the part is made.

01:26:32 16 Q. And so can you just give the jury some kind of sense of
01:26:36 17 the overall volume of materials that you reviewed in this
01:26:40 18 case regarding the accused products?

01:26:42 19 A. Yeah, I probably should have added it up in terms of
01:26:46 20 how many feet of paper. I don't tend to print it out
01:26:49 21 myself, but law firms do. And, literally, it's probably
01:26:52 22 50 feet of notebooks or more. It's a lot of information.

01:26:59 23 When you multiply all of those things I described
01:27:01 24 times about 15 or 20, I think 24 phones, maybe 24 phones,
01:27:08 25 it kept me busy for a lot of last year.

01:27:10 1 Q. How much time did you spend analyzing the documents to
01:27:14 2 learn about Samsung's phone and do the comparison to the
01:27:17 3 claims that you'll tell the jury about?

01:27:19 4 A. It's between three and 400 hours I spent over the last
01:27:24 5 year on this -- on this effort.

01:27:26 6 Q. Okay. So let's turn to the '311 patent. And can you
01:27:31 7 give us an overview of how you're going to organize your
01:27:36 8 talk -- actually, instead of doing -- well, yeah, go ahead.
01:27:39 9 Give us an overview of what you'll tell us.

01:27:41 10 A. Okay. So, you know, very briefly, it's on the screen.
01:27:44 11 We'll start with the invention. You've heard a lot about
01:27:46 12 that this morning, and so some of this we can go through
01:27:50 13 more quickly than if I had to start from scratch. But I'll
01:27:53 14 remind you some of the key points.

01:27:55 15 We'll look to see how the claim language claimed
01:27:57 16 in the patents that are asserted compare to the Galaxy
01:28:00 17 phones.

01:28:01 18 Q. And is that -- is that part -- the second one, is that
01:28:04 19 actually the infringement analysis comparing the phones to
01:28:07 20 the claim -- the asserted claims?

01:28:09 21 A. Yeah, that's another -- another way to say it. It's an
01:28:12 22 infringement analysis. Claim/product, these are a match.
01:28:17 23 So I'll be doing that analysis for all of these phones.

01:28:24 24 An investigation of when the invention actually
01:28:26 25 occurred. You heard a lot about that this morning, so

01:28:29 1 we'll summarize the key points there.

01:28:31 2 And, finally, what was Samsung's knowledge of this
01:28:35 3 '311 patent throughout this process -- this time -- time
01:28:39 4 frame?

01:28:39 5 Q. Okay. Can you give us a little bit of background on
01:28:43 6 the invention of the '311?

01:28:44 7 A. Yeah. So the '311 patent was issued February 9th,
01:28:53 8 2016. It was actually filed in October 28th of 2011. The
01:28:59 9 date of invention, I think you heard this morning, was
01:29:02 10 roughly in January of 2011. So that's going to be
01:29:05 11 important for some other aspects I'll discuss later.
01:29:08 12 You've heard from two of the inventors, one by -- by video
01:29:12 13 and one in person.

01:29:15 14 Q. Okay. And what are you showing here? Is this some of
01:29:19 15 the background technology related to the '311 patent?

01:29:22 16 A. Yes. So to remind you, the '311 patent is about the
01:29:27 17 touch sensor that we have on our phones. I think it was
01:29:30 18 mentioned this morning, Apple was probably the first
01:29:32 19 company to put this so-called capacitance sensor on a cell
01:29:37 20 phone. It was kind of a breakthrough. If you think about
01:29:39 21 it, before we had buttons, all of a sudden we could touch
01:29:43 22 the screen anywhere and interact with an icon or we could
01:29:46 23 turn things up and down.

01:29:47 24 It all starts with an electrode on top of the --
01:29:51 25 on top of your screen. So you have -- whether it's an LCD

01:29:54 1 or an OLED, it's a display. You have an invisible, at
01:29:59 2 least to the human eye, screen or electrode -- I should say
01:30:04 3 several electrodes. Kind of think of a grid of electrodes
01:30:07 4 on your phone, and it has some voltages on those
01:30:10 5 electrodes.

01:30:10 6 When you touch this screen, your body has a small
01:30:13 7 amount of charge, a small amount of electricity that will
01:30:17 8 actually kind of disturb the force field of this sensor.
01:30:22 9 And when that happens, there's a controller chip, and the
01:30:26 10 controller chip is sitting there waiting for something to
01:30:28 11 happen. So nothing is happening, nothing is happening, I
01:30:31 12 put my finger there and it says, ah-ha, I see something,
01:30:35 13 and then it decides where -- where did I touch. It sends
01:30:37 14 that information to the computer, and that tells the
01:30:39 15 computer to do something, maybe open a file.

01:30:41 16 Q. And is this an illustration of what Mr. Shaikh was
01:30:44 17 describing on the stand about capacitive touch and sending
01:30:51 18 the signal back to this controller?

01:30:52 19 A. Yeah, exactly. Just another view of that idea. I
01:30:54 20 don't think he had the luxury of having graphics like I do.

01:30:57 21 Q. Mr. Shaikh also told us about the different types of
01:31:00 22 conductive materials, ITO versus metal mesh. Do you have
01:31:04 23 an illustration of that?

01:31:05 24 A. Yes. So around 2007, I think Apple introduced the
01:31:11 25 iPhone. The only metal -- the only mesh that they could

01:31:14 1 use for their sensor was something called indium tin oxide.
01:31:17 2 We've heard a little bit about that.

01:31:19 3 Just think about it as a transparent conductor.
01:31:22 4 So it's like a metal, but you can see through it. And if
01:31:25 5 you can make a pattern of diamonds like is shown on the
01:31:29 6 left side of this screen, it will interact with your
01:31:31 7 finger, and you can -- you can make a signal. So that's
01:31:34 8 the old way of doing things.

01:31:35 9 That -- that technology had some issues, but it
01:31:39 10 did work.

01:31:42 11 MR. FENSTER: Mr. Wietholter, if we could skip to
01:31:44 12 Slide 19.

01:31:48 13 Q. (By Mr. Fenster) And, Mr. Credelle, if you could just
01:31:50 14 give us an overview of --

01:31:54 15 MR. FENSTER: Skip one more.

01:31:55 16 Q. (By Mr. Fenster) And can you just give us an overview
01:31:57 17 of the invention of the '311 patent?

01:32:00 18 A. Yes. So the metal mesh, which you heard about this
01:32:03 19 morning and is shown in this slide, the touch sensor, which
01:32:09 20 is really a metal mesh on a substrate, it's configured to
01:32:11 21 wrap around the edge of a display.

01:32:13 22 So I'm illustrating here a touch sensor on a
01:32:15 23 substrate. We have a display on the bottom, which happened
01:32:19 24 to have some curved edges, and there's a cover glass,
01:32:23 25 basically the front of your phone.

01:32:25 1 If we assemble them, now we have basically the top
01:32:29 2 of your phone, and it now has a touch sensor on the flat
01:32:34 3 surface. It has a touch sensor on the edge. So it's a
01:32:36 4 very new kind of concept, and it's the concept Samsung uses
01:32:40 5 in many of their phones now.

01:32:42 6 Q. And what are some of the benefits of the '311
01:32:45 7 invention?

01:32:45 8 A. So the '311 invention, because it's based on metal
01:32:48 9 mesh, what -- that allows the sensor to work better. I
01:32:53 10 think you heard this morning if the resistance is lower, it
01:32:58 11 will move faster, so less sluggish. If you touch it, it
01:33:01 12 will respond.

01:33:02 13 It allows these new form factors. It's very hard
01:33:05 14 to make ITO bend around edges and corners. It can be done,
01:33:09 15 but it's very expensive. So if you want that kind of
01:33:12 16 feature, the metal mesh, the flexibility of that will allow
01:33:16 17 you to make these new form factors. It could be lower
01:33:20 18 cost.

01:33:23 19 And, finally, you can have phones with very small
01:33:25 20 borders. If you put -- if you wrap around the sensor, then
01:33:29 21 you can hide all the other connections underneath.

01:33:32 22 Q. Okay. Let's move on to the infringement analysis.

01:33:35 23 A. Let's.

01:33:40 24 Q. Okay. So can you give us an overview or identify for
01:33:44 25 the jury which phones are infringing the '311 patent?

01:33:46 1 A. Yes. So, as I mentioned, some of the Samsung phones
01:33:50 2 still use the old technology, but the transition was made
01:33:54 3 to this metal mesh sensor. Starting with the S8, then the
01:33:59 4 S9, the S9 Plus, the S10, the S10 Plus, the S10 5G, the
01:34:09 5 S20, the S20 Plus, the S20 Ultra, the Z-Flip, the Note 9,
01:34:17 6 the Note 10, and Note 10 Plus. Samsung does have a lot of
01:34:21 7 phone models.

01:34:22 8 Q. And can we refer -- actually, I'll withdraw.

01:34:25 9 A. Yeah.

01:34:25 10 Q. Did you analyze each of the phones that you just read
01:34:28 11 into the record and compare them to the asserted claims of
01:34:33 12 the '311 patent?

01:34:33 13 A. Yes, I did that. And all of these devices infringe
01:34:41 14 Claim 7 and 12. And I'll probably refer to these and this
01:34:45 15 group of products as the '311 infringing devices.

01:34:50 16 MR. FENSTER: Your Honor, at this time, we're
01:34:51 17 going to move into confidential material, and I'd ask that
01:34:53 18 the courtroom be sealed.

01:34:54 19 THE COURT: Based on that request from counsel,
01:34:57 20 I'll order the courtroom sealed.

01:34:59 21 Those of you that are present and not subject to
01:35:01 22 the protective order in this case should excuse yourselves
01:35:04 23 and remain outside the courtroom until it is reopened and
01:35:08 24 unsealed.

01:35:11 25 (Courtroom sealed.)

01:35:11 1 (This portion of the transcript is sealed

01:35:11 2 and filed under separate cover as

01:35:24 3 Sealed Portion No. 3.)

02:34:41 4 (Courtroom unsealed.)

02:34:42 5 THE COURT: If you'll leave your notebooks in your

02:34:44 6 chairs, follow all my instructions, use this opportunity to

02:34:47 7 stretch your legs, get a drink of water, and we'll be back

02:34:50 8 shortly to continue with the rest of this direct testimony.

02:34:52 9 The jury is excused for recess at this time.

02:34:54 10 COURT SECURITY OFFICER: All rise.

02:34:57 11 (Jury out.)

02:34:58 12 THE COURT: The Court stands in recess.

02:35:37 13 COURT SECURITY OFFICER: All rise.

02:35:38 14 (Recess.)

02:50:26 15 (Jury out.)

02:50:27 16 COURT SECURITY OFFICER: All rise.

02:50:28 17 THE COURT: Be seated, please.

02:50:30 18 Mr. Fenster, are you prepared to continue with

02:50:37 19 your direct examination of Mr. Credelle?

02:50:39 20 MR. FENSTER: Yes, Your Honor.

02:50:40 21 THE COURT: And am I correct you see no problems

02:50:46 22 with starting with the remainder of your direct with the

02:50:49 23 courtroom unsealed? You'll let me know when you need to

02:50:52 24 return to the sealed posture?

02:50:54 25 MR. FENSTER: I will, and counsel for Samsung just

02:50:57 1 asked that I advise. So I'm going to tell the Court when
02:51:00 2 I'm going to go into technical information and ask that the
02:51:03 3 court be sealed.

02:51:04 4 There is -- later in the process, I'll be going
02:51:09 5 into licenses for a comparability analysis. I will
02:51:12 6 separately advise Your Honor at that point because Samsung
02:51:16 7 has requested that one of their corporate reps who can hear
02:51:20 8 the technical but not the licensing information. So I'll
02:51:23 9 advise you when it's time to seal, and then I'll advise you
02:51:26 10 when I'm going to go into the licenses if that's okay?

02:51:30 11 THE COURT: All right. Let me make sure I
02:51:32 12 understand you. You're going to let me know when you're
02:51:35 13 going into technical testimony, and you're going to request
02:51:39 14 that I seal the courtroom.

02:51:39 15 MR. FENSTER: Yes.

02:51:40 16 THE COURT: And at some point when you finish the
02:51:43 17 technical testimony, you're going to request that I unseal
02:51:45 18 the courtroom?

02:51:47 19 MR. FENSTER: No, it will remained sealed, but
02:51:50 20 Samsung has asked, and I've agreed, that their corporate
02:51:54 21 rep can stay in during the sealed portion that I'm going to
02:51:57 22 deal with only the technical matters, and then I'll advise
02:52:00 23 the Court so that Samsung can have her exit when I --
02:52:04 24 before I get into the licensing.

02:52:05 25 THE COURT: All right.

02:52:05 1 MR. FENSTER: But it will remain sealed throughout
02:52:09 2 that time.

02:52:09 3 THE COURT: And that raises a good point. I have
02:52:12 4 in the past trials had problems with people getting up,
02:52:16 5 going out, coming back in while the courtroom is sealed,
02:52:20 6 and those that are outside see people come and go and
02:52:23 7 wonder why they have to stay outside and everybody else can
02:52:28 8 seem to come and go with impunity.

02:52:31 9 So I'll certainly permit this per your agreement
02:52:33 10 with defense counsel, but as a general rule, once the
02:52:37 11 courtroom is sealed, I don't expect support staff to be
02:52:41 12 coming and going in and out of the door.

02:52:44 13 As a matter of fact, many of our Court Security
02:52:45 14 Officers lock the door during sealing. They don't leave it
02:52:48 15 open. All right?

02:52:49 16 MR. FENSTER: Very good.

02:52:50 17 THE COURT: All right. Let's bring in the jury,
02:52:54 18 please.

02:52:54 19 COURT SECURITY OFFICER: All rise.

02:53:15 20 (Jury in.)

02:53:17 21 THE COURT: Please be seated, ladies and
02:53:36 22 gentlemen.

02:53:36 23 We'll continue with the Plaintiff's direct
02:53:41 24 examination of Mr. Thomas Credelle.

02:53:45 25 Mr. Fenster, you may proceed.

02:53:47 1 MR. FENSTER: Thank you, Your Honor.

02:53:47 2 Q. (By Mr. Fenster) So, Mr. Credelle, we just went
02:53:51 3 through the '311 patent.

02:53:53 4 Now we're going to turn to the '450 and '338
02:53:55 5 patents. Can you give the jury an idea -- just sort of the
02:54:00 6 overview bullet points of the topics that we're going to
02:54:03 7 cover in this next section?

02:54:04 8 A. Yes, certainly.

02:54:05 9 This -- we've switched gears now. We were talking
02:54:09 10 about the touch sensor, that's the '311 patent. Now we're
02:54:11 11 going to talk about the display. In this case, it's the
02:54:16 12 so-called OLED display, and it has a lot of stuff inside.

02:54:20 13 So we're going to start with a little technology
02:54:22 14 background that will hopefully allow you to make a little
02:54:25 15 bit more sense of the claims as we go through them. Then
02:54:28 16 we'll talk about the invention of the '450 patent.

02:54:30 17 But, first, I'll do my infringement analysis for
02:54:34 18 the '450, I'll move on to the '338 patent, which is another
02:54:37 19 patent related to the display, and then talk about the
02:54:43 20 infringement analysis for the '338.

02:54:45 21 Q. Okay. Can you give us a little bit of technical --
02:54:49 22 technical background to orient the jury for these next
02:54:51 23 patents?

02:54:51 24 A. Yes. So we're talking about Organic Light-Emitting
02:54:56 25 Diodes. It's abbreviated OLED. You may have seen that --

02:54:59 1 that word advertised on some displays for phones or TVs if
02:55:04 2 you go to Best Buy. This is a new type of display
02:55:08 3 technology, which I'll describe.

02:55:11 4 Q. Okay. And can you give us a little bit of an overview
02:55:19 5 of the -- how the OLEDs work in terms of the pixels and the
02:55:25 6 circuits?

02:55:25 7 A. I'll be happy to. This is the stuff I really love, so
02:55:29 8 I'll hopefully get the message across.

02:55:31 9 I mentioned that I started with RCA Labs in the
02:55:35 10 '70s. And these CRTs, these big, bulky TV sets that we all
02:55:39 11 had in our rooms, if you're old enough. And that was the
02:55:42 12 good technology of the day.

02:55:44 13 Moved into liquid crystal displays, starting
02:55:47 14 putting them in small products, then laptops, then TV sets,
02:55:51 15 still in use today.

02:55:53 16 It's progressed now, though, in the last several
02:55:55 17 years to the next generation, which is called OLED, and
02:55:59 18 it's a superior technology, which I'll describe some of its
02:56:05 19 features.

02:56:05 20 Q. Go ahead.

02:56:06 21 A. Okay. So, first, how do they work? If we had several
02:56:14 22 days, I could give you really good lessons, but I'll try to
02:56:18 23 keep -- keep it short.

02:56:19 24 If you were to look under a microscope at this
02:56:22 25 Samsung Galaxy phone, you would see a series of red, green,

02:56:26 1 and blue dots. Sometimes when you look under a microscope,
02:56:30 2 you may see pictures with displays with stripes, but this
02:56:34 3 is a different type of pattern.

02:56:36 4 Each of those dots is an LED. So you're probably
02:56:41 5 familiar with LEDs in flashlights or even in light bulbs.
02:56:41 6 An LED is a very simple device. But if you want to make a
02:56:44 7 display out of LEDs, you have to figure out some way to
02:56:48 8 spread them out over a big piece of glass or such.

02:56:52 9 To make light -- to make a picture, each LED
02:56:56 10 brightness has to be controlled. So if it was a dark
02:56:59 11 picture, it would be black, it would be off. If it's a
02:57:03 12 bright picture, it would be on. If you wanted a red glob,
02:57:07 13 you would just turn on the red dots.

02:57:09 14 If you look more closely under a more high-powered
02:57:15 15 microscope, you'd see these dots. They're kind of funny
02:57:18 16 shapes, but maybe in this picture you can kind of see,
02:57:21 17 underneath those dots are circuits.

02:57:23 18 So somehow we have to let the computer tell each
02:57:26 19 pixel how bright to be, and that's done with an array of
02:57:29 20 circuitry, which I'll show the kind of main components.
02:57:33 21 And they drive all of these pixels -- it means picture
02:57:37 22 element, but the dots are sometimes called pixels, to
02:57:40 23 create an image.

02:57:44 24 So I said the LED is a pretty simple device. If
02:57:48 25 you put a voltage across an LED, like in a flashlight, you

02:57:52 1 push the switch, voltage is applied, light comes out. You
02:57:55 2 turn it off, light's done.

02:57:58 3 Same thing with this OLED in a display, except now
02:58:01 4 there's red, green, and blue patches. But they're all
02:58:05 5 still controlled with a low voltage, just a few volts, and
02:58:05 6 they'll turn on and be nice and bright. And if you turn
02:58:10 7 down the voltage, it will get dimmer. If you turn up the
02:58:13 8 voltage, it'll get brighter.

02:58:13 9 Q. And what makes this an Organic Light-Emitting Diode?

02:58:16 10 A. Yeah. So the LEDs we use in our flashlights and light
02:58:22 11 bulbs are made in a semiconductor process. So it's -- it's
02:58:26 12 called an inorganic LED. It's not -- the distinction isn't
02:58:32 13 so important, but these are made out of organic materials
02:58:35 14 that are evaporated onto a piece of glass, so it's a
02:58:40 15 different process. But the process is more compatible with
02:58:43 16 large sizes.

02:58:44 17 So these days you can buy OLED TVs that are
02:58:48 18 80 inches or more. And it uses these Organic
02:58:52 19 Light-Emitting Diodes, but the principle of operation is
02:58:54 20 the same.

02:58:54 21 Q. So you mentioned that there are circuits behind each of
02:58:58 22 the pixels to control the voltage going into each and every
02:59:02 23 single OLED. Can you illustrate that for us?

02:59:05 24 A. Yes. One more point in this slide. On the left is a
02:59:11 25 symbol that electrical engineers use to indicate a diode.

02:59:15 1 This is -- it won't be so important, but I just wanted
02:59:18 2 to -- if you see this later, that's where the light comes
02:59:20 3 out. I'll try to make that clear.

02:59:21 4 So I showed you a picture that had some circuitry.
02:59:26 5 And as Mr. Fenster said, if you want to control all of
02:59:29 6 these dots, you have to have some extra circuits. You
02:59:34 7 can't put two wires to every pixel. You'd have, you know,
02:59:37 8 millions of miles of wire.

02:59:39 9 So you have a -- what's called a matrix. It's a
02:59:43 10 grid of transistors and capacitors and electrodes that will
02:59:50 11 drive all of these pixels to the right brightness, and it's
02:59:53 12 all going to take information from a computer to tell the
02:59:56 13 screen what brightness to be. And I'll try to show you how
02:59:59 14 that works.

02:59:59 15 Q. And what does active matrix refer to?

03:00:03 16 A. So I think engineers like to come up with buzz words
03:00:09 17 and names. It's a matrix, it's like a grid, and it uses
03:00:14 18 what engineers call active components. So a transistor is
03:00:20 19 an example of an active component. So active matrix would
03:00:23 20 have transistors in addition to the OLED material and some
03:00:26 21 other components that I'll show.

03:00:27 22 Q. And do these individual tiny circuits individually
03:00:31 23 control the voltage going through every one of these
03:00:34 24 millions of points of light or pixels?

03:00:37 25 A. Absolutely. It amazes even me sometimes that it works.

03:00:41 1 Q. And this Active-Matrix OLED, is that something that
03:00:44 2 you've heard -- I probably jumped the gun -- with an
03:00:51 3 acronym an AMOLED?

03:00:51 4 A. Yes. Sometimes -- again engineers like to make up
03:00:54 5 acronyms, but AMOLED is sometimes used as an acronym. But
03:01:00 6 I'll try to minimize the use of acronyms because it gets
03:01:02 7 confusing.

03:01:03 8 Q. So can you -- in the opening statement and through some
03:01:08 9 of the claims, we've seen that the claims require something
03:01:10 10 called a transistor. Can you tell the jury what that is?

03:01:13 11 A. Yes. So one of the components we need in this circuit
03:01:16 12 is a transistor. Transistors come in all flavors and
03:01:20 13 shapes and sizes, but fortunately for displays, it's a
03:01:24 14 pretty simple device.

03:01:26 15 All transistors have three electrodes, but two of
03:01:31 16 them have current flow and one of them is a control valve,
03:01:36 17 if you will. So we have a gate. It's called a gate and a
03:01:40 18 source and a drain.

03:01:41 19 But if you think of a pipe with a gate valve, if
03:01:44 20 you have a transistor, and this is what the side view of a
03:01:49 21 transistor would look like. It has what's called a source,
03:01:51 22 think of that as source of water in a pipe or a source of
03:01:55 23 current. It has a drain. You would think of water. A
03:01:59 24 channel is an area that's going to be kind of where the
03:02:04 25 gate valve is located. There's also an insulator, and

03:02:09 1 there's a gate. A gate is an electrode, so there's three
03:02:12 2 electrodes.

03:02:12 3 So if I want to control how much current is
03:02:15 4 flowing in the transistor or how much water is flowing in
03:02:18 5 the pipe, I can open the valve, and a certain amount of
03:02:22 6 water will flow through and, likewise, a certain amount of
03:02:26 7 current will go through this device. I can open the gate
03:02:29 8 farther, and more current will flow. So just think of
03:02:31 9 water in a pipe and a gate valve.

03:02:34 10 Having this -- this function in a display will
03:02:40 11 allow us to adjust the current, which controls the
03:02:44 12 brightness of every pixel. Low current, low brightness;
03:02:47 13 high current, high brightness.

03:02:49 14 Q. And is there another circuit element that you'd like to
03:02:51 15 tell the jury about --

03:02:51 16 A. Yes.

03:02:52 17 Q. -- before we get into the patent analysis?

03:02:54 18 A. Yes. So the second -- the second requirement or need
03:02:56 19 for any display is the ability to tell the display what
03:03:03 20 picture you want to -- you want to make. And it's helpful
03:03:06 21 if you can store that information someplace.

03:03:07 22 And a real handy device for storing information in
03:03:10 23 this kind of a display is called a capacitor. It's another
03:03:17 24 component that electrical engineers use in their circuits.

03:03:19 25 And it's pretty simple. It's -- if you put some

03:03:22 1 current into a capacitor, it will charge up. It will get
03:03:25 2 to a high -- it will get to a voltage. A little bit of a
03:03:28 3 current will get a low voltage. A higher current will get
03:03:31 4 a higher voltage.

03:03:33 5 And once the -- once the current or charges are
03:03:38 6 put on the capacitor, it will stay there until you take it
03:03:41 7 away. So it does kind of act like a memory.

03:03:46 8 If you think of a display like a big memory, what
03:03:50 9 I'd like to be able to do is have the computer tell me what
03:03:52 10 every dot of brightness is supposed to be. So I put that
03:03:56 11 information -- sorry -- put that information into the
03:03:59 12 capacitors, and then the capacitors are going to control
03:04:02 13 that gate, and it's going to allow current to flow through
03:04:06 14 every pixel.

03:04:07 15 So that's the concept of how these displays work.

03:04:10 16 Q. Okay. Can you just explain to the jury in a very
03:04:13 17 simple way how the capacitor and the transistor work
03:04:15 18 together to control an individual OLED pixel?

03:04:19 19 A. Right. So -- so here's a transistor in these patents,
03:04:30 20 and it's pretty typical for OLED displays as they talk
03:04:34 21 about a drive transistor. Think about it as the transistor
03:04:37 22 that's going to control the current that goes to the OLED,
03:04:40 23 which is this device at the bottom.

03:04:43 24 So I have my current flowing through here, it's
03:04:47 25 controlled by how much signal I have on that capacitor. So

03:04:51 1 if I store a little bit of charge, a little bit of signal,
03:04:53 2 it will be dim. If I make a high signal here, it will be
03:04:58 3 brighter.

03:04:59 4 And I think maybe the next slide shows that.

03:05:03 5 So by increasing the gate, increasing the charge,
03:05:11 6 the control signal on the gate, more current is going to
03:05:14 7 flow.

03:05:15 8 So if I have -- if I have some way with some extra
03:05:18 9 wires to put these signals on these capacitors and then let
03:05:22 10 the current flow, I'll be able to create a picture.

03:05:24 11 Q. And if you -- and I think the next one shows --

03:05:28 12 A. High brightness, yeah. Low, medium, high.

03:05:31 13 Q. Okay. So now let's turn to the '450 patent. And can
03:05:35 14 you give the jury an overview of what the '450 patent
03:05:38 15 invention relates to?

03:05:39 16 A. Yes. So the '450 patent, as I mentioned, is about
03:05:43 17 OLEDs. And it's -- it's more about the structure, and it's
03:05:47 18 more of a structure patent than it is like a circuit
03:05:51 19 patent, if you will. I'll try to describe that.

03:05:53 20 The '450 patent, 6,072 -- the date of the patent
03:06:00 21 is June 6th of 2000. It's PTX-001.

03:06:08 22 And we're going to -- we're going to discover --
03:06:11 23 we're going to consider Claim 4 and Claim 5 in this
03:06:16 24 infringement analysis. They're both dependent on Claim 1.
03:06:19 25 And I'll go through those line-by-line in the same way I

03:06:23 1 did for the '311 patent.

03:06:25 2 Q. Before we do that, can you give the jury just an

03:06:28 3 overview conceptually of what the '450 relates to --

03:06:31 4 A. Yes.

03:06:31 5 Q. -- or that invention?

03:06:34 6 A. So I just described two components, a capacitor and a

03:06:39 7 transistor. A typical simple OLED circuit would have two

03:06:43 8 transistors and one capacitor. And they take up some

03:06:46 9 space. Here's kind of a lay -- a top view of those

03:06:50 10 transistors.

03:06:53 11 And when the resolution of the display gets really

03:06:55 12 high, so the pixels get really small, it really doesn't

03:06:58 13 leave a lot of room for this light-emitting area. So as

03:07:02 14 that gets squeezed, it's going to be lower brightness. So

03:07:07 15 this is kind of the old way of making an Active-Matrix OLED

03:07:11 16 screen.

03:07:13 17 Thank you.

03:07:13 18 The new way, as described in the '450 patent, is

03:07:18 19 to think about making a two-level circuit. I like to think

03:07:24 20 of it as kind of a two-story house. On the first floor,

03:07:28 21 we're going to take away the light-emitting part. Just

03:07:31 22 leave the circuits.

03:07:32 23 And it's not only the circuits, I mentioned there

03:07:35 24 are wires that have to bring the signals into those

03:07:37 25 circuits. They take up room, as well. So if you can get

03:07:40 1 rid of that light-emitting material, you have more room for
03:07:43 2 that stuff.

03:07:44 3 So to do that, though, you have to deposit some
03:07:46 4 insulator. You don't want things to short out. So you put
03:07:50 5 an insulator. You have to actually make some holes so you
03:07:54 6 can put a wire connection between the first floor and the
03:07:56 7 second floor, and then you can create electrodes and
03:08:01 8 light-emitting material and a second electrode.

03:08:05 9 And now you have the ability -- now, you can
03:08:08 10 actually have more room for the light-emitting material, so
03:08:12 11 you can have a brighter display or it can even last longer.
03:08:17 12 You can have -- you can put in more transistors. You can
03:08:20 13 put in more -- you can go to higher resolution displays.

03:08:24 14 So these are very key advancements to think about
03:08:28 15 going from low resolution to high resolution, where today
03:08:33 16 all phones have high resolution. That means there's lots
03:08:36 17 of dots per inch. And it has other benefits.

03:08:39 18 Q. Okay. Now, I think the next part of your analysis is
03:08:41 19 going to move into the infringement analysis.

03:08:44 20 MR. FENSTER: And at this point, Your Honor, I
03:08:45 21 would ask that the courtroom be sealed, as we're going to
03:08:47 22 get into confidential material.

03:08:50 23 THE COURT: Then based on counsel's request, I'll
03:08:53 24 order the courtroom sealed at this time.

03:08:54 25 And I'll direct those who are present but not

03:08:57 1 subject to the protective order to excuse themselves and
03:08:59 2 remain outside the courtroom until it's reopened and
03:09:02 3 unsealed.

03:09:03 4 (Courtroom sealed.)

03:09:03 5 (This portion of the transcript is sealed
03:09:03 6 and filed under separate cover as
03:09:04 7 Sealed Portion No. 4.)

04:20:09 8 (Courtroom unsealed.)

04:20:09 9 THE COURT: When I come back, I'll reseal the
04:20:12 10 courtroom. This individual can remain outside when the
04:20:14 11 courtroom is resealed per your agreement.

04:20:16 12 MR. FENSTER: Thank you.

04:20:17 13 THE COURT: Ladies and gentlemen of the jury,
04:20:18 14 simply close your notebooks, if you will, and leave them in
04:20:21 15 your chairs. Please follow all my instructions, including
04:20:24 16 not to discuss the case among yourselves or with anyone.
04:20:28 17 And we'll be back here -- I'm going to try to keep this
04:20:31 18 short, so approximately 10 minutes, and we'll continue with
04:20:34 19 the direct examination of this witness at that time.

04:20:36 20 All right. The court stands in recess.

04:20:40 21 COURT SECURITY OFFICER: All rise.

04:20:40 22 (Recess.)

04:38:34 23 (Jury out.)

04:38:35 24 COURT SECURITY OFFICER: All rise.

04:38:36 25 THE COURT: Be seated, please.

04:38:37 1 Let's bring in the jury, please.

04:38:53 2 COURT SECURITY OFFICER: All rise, please.

04:38:57 3 THE COURT: It won't hurt you to get up and down
04:39:01 4 in the middle of the afternoon.

04:39:02 5 THE WITNESS: Exercise. Exercise.

04:39:07 6 (Jury in.)

04:39:31 7 THE COURT: Please be seated.

04:39:32 8 Counsel, as we previously discussed, I'm going to
04:39:35 9 order the courtroom sealed at this juncture and direct that
04:39:38 10 all persons not subject to the protective order in this
04:39:40 11 case that might be present in the courtroom, you should
04:39:44 12 excuse yourselves and remain outside the courtroom until
04:39:46 13 it's reopened and unsealed.

04:39:47 14 (Courtroom sealed.)

04:39:47 15 (This portion of the transcript is sealed
04:39:47 16 and filed under separate cover as
04:39:48 17 Sealed Portion No. 5.)

04:39:48 18 (Courtroom unsealed.)

04:50:52 19 THE COURT: All right. Sir, proceed with your
04:51:33 20 cross-examination, please.

04:51:35 21 MR. HASLAM: Could we pull up Plaintiff's
04:51:37 22 Demonstrative 242 that was used during the direct?

04:51:52 23 242. It's in the Plaintiff's deck. Do you have
04:52:11 24 that? 242.

04:52:11 25 CROSS-EXAMINATION

04:52:21 1 BY MR. HASLAM:

04:52:21 2 Q. Okay. You recognize this as one of the demonstratives
04:52:25 3 that you used?

04:52:26 4 A. Yes.

04:52:26 5 Q. Okay. And I think you were asked a question at some
04:52:29 6 point about how this circuit operated. I want to focus on
04:52:35 7 T3 here for a moment.

04:52:37 8 A. Okay.

04:52:37 9 Q. T3 is connected between the drain of T1 and the gate of
04:52:44 10 T1 and the lower plate of the capacitor Cst, correct?

04:52:56 11 A. Yes.

04:52:56 12 Q. And the claim that you were addressing with this slide,
04:53:04 13 the '338, required that when T3 is off, it holds the
04:53:09 14 voltage between the gate and source of T1, correct?

04:53:14 15 A. Yes.

04:53:16 16 Q. Okay. Now, you recall you were -- you gave us a
04:53:19 17 report, right? You prepared a report, all the experts
04:53:23 18 prepared a report, very voluminous, that set forth all of
04:53:27 19 your opinions that you were going to testify to?

04:53:29 20 A. Yes.

04:53:29 21 Q. And then we had an opportunity to ask you questions at
04:53:32 22 a deposition, correct?

04:53:33 23 A. Correct.

04:53:34 24 Q. And we asked you at your deposition about T3. And I
04:53:40 25 just want to make sure, that during the light-emission

04:53:44 1 period, T3 is off, correct?

04:53:46 2 A. During the light-emission period, T3 is off.

04:53:52 3 Q. And you were asked at your deposition: And when T3 is
04:53:55 4 off, T3 is holding a voltage between the gate and drain of
04:53:59 5 T1, the driving transistor, correct?

04:54:03 6 And you said: Yes.

04:54:04 7 Do you recall that testimony, or do you want to
04:54:09 8 see it?

04:54:09 9 A. No, I recall.

04:54:11 10 Q. Thank you.

04:54:31 11 MR. HASLAM: Can we pull up -- I think it's
04:54:42 12 Slide -- well, I lost myself here. Hang on.

04:54:47 13 Can you pull up DTX-633?

04:54:57 14 Q. (By Mr. Haslam) Do you recognize this document?

04:54:58 15 A. Yes, I -- it looks familiar.

04:55:03 16 Q. It's a -- do you know what the PDR is?

04:55:07 17 A. I know what the PDR is. I don't remember what model MQ
04:55:11 18 relates to, but it's one of the ones I analyzed --

04:55:15 19 THE COURT: Just a minute.

04:55:16 20 Mr. Fenster, do you have some reason why you're
04:55:18 21 standing?

04:55:19 22 MR. FENSTER: I apologize. We did not receive any
04:55:21 23 cross-examination binders, if there are such.

04:55:23 24 THE COURT: If we have one to cross out -- pass
04:55:25 25 out, rather, we need to do that.

04:55:28 1 MR. FENSTER: Apologize for the interruption.

04:55:36 2 Q. (By Mr. Haslam) Okay. This is the kind of document
04:55:38 3 you relied on?

04:55:39 4 A. Yes, it's an example.

04:55:41 5 MR. HASLAM: Can we go to Page 8 in this document?

04:55:43 6 Q. (By Mr. Haslam) This is a page that's called -- it's
04:55:48 7 4.3.

04:55:52 8 MR. HASLAM: I guess we need to seal the
04:55:54 9 courtroom. I apologize.

04:55:55 10 THE COURT: That's all right. Based on counsel's
04:55:58 11 request, I'll order the courtroom sealed. Those present
04:56:00 12 not subject to the protective order should excuse
04:56:03 13 themselves until the courtroom is reopened and unsealed.

04:56:10 14 (Courtroom sealed.)

04:56:10 15 (This portion of the transcript is sealed
04:56:10 16 and filed under separate cover as
04:56:11 17 Sealed Portion No. 6.)

05:31:01 18 (Courtroom unsealed.)

05:31:01 19 THE COURT: Now, that we're unsealed, based on
05:31:04 20 Defendants' request, we'll take a short recess, not more
05:31:10 21 than 20 minutes.

05:31:12 22 Ladies and gentlemen of the jury, if you'll take
05:31:14 23 your notebooks with you, if you'll return to the jury room,
05:31:18 24 I don't know if it will be exactly that length of time, but
05:31:22 25 as soon as counsel is prepared to go forward, I'll have you

05:31:24 1 back in here to continue with the cross-examination of
05:31:26 2 Mr. Credelle.

05:31:27 3 Follow all my instructions, including not to
05:31:31 4 discuss the case.

05:31:31 5 The jury is excused to the jury room.

05:31:34 6 COURT SECURITY OFFICER: All rise.

05:31:35 7 THE COURT: Ms. Hux, why don't you lead the way?
05:31:47 8 Well, okay.

05:31:55 9 (Jury out.)

05:31:55 10 THE COURT: All right. The Court's going to stand
05:32:15 11 in recess.

05:32:16 12 Mr. Haslam, when you're ready to proceed some time
05:32:20 13 in the next 20 minutes, let me know.

05:32:22 14 MR. HASLAM: Will do.

05:32:23 15 THE COURT: The Court's in recess.

05:32:30 16 (Recess.)

05:32:31 17 (Jury out.)

05:32:34 18 COURT SECURITY OFFICER: All rise.

05:32:35 19 THE COURT: Be seated, please.

05:48:49 20 Mr. Haslam, are you prepared to have the Court
05:48:54 21 bring the jury back in and continue with your
05:48:57 22 cross-examination?

05:48:57 23 MR. HASLAM: Well, as I'm ever going to be on
05:49:00 24 this.

05:49:03 25 THE COURT: All right.

05:49:06 1 MR. HASLAM: When they come in, just to save time,
05:49:08 2 I will ask to have the courtroom sealed.

05:49:10 3 THE COURT: Okay. That's fine.

05:49:11 4 Let's bring the jury in, please.

05:49:20 5 COURT SECURITY OFFICER: All rise.

05:49:23 6 (Jury in.)

05:49:23 7 THE COURT: Welcome back, ladies and gentlemen.

05:49:50 8 Please be seated.

05:49:50 9 Is it my understanding, Mr. Haslam, you would like
05:49:57 10 to request the Court to seal the courtroom?

05:50:00 11 MR. HASLAM: Please.

05:50:01 12 THE COURT: Then based on that, I will order the
05:50:03 13 courtroom sealed. I'll direct the Court Security Officer
05:50:04 14 to enforce the sealing of the courtroom.

05:50:08 15 Those present who are not subject to the Court's
05:50:11 16 protective order in this case should exit the courtroom and
05:50:14 17 remain outside until the courtroom is unsealed.

05:50:18 18 (Courtroom sealed.)

05:50:18 19 (This portion of the transcript is sealed
05:50:18 20 and filed under separate cover as
05:50:18 21 Sealed Portion No. 7.)

06:06:30 22 (Courtroom unsealed.)

06:06:31 23 THE COURT: I've excused the jury for the evening.
06:06:33 24 Counsel, please be seated.

06:06:35 25 I'm showing that today, we have used seven hours

06:06:49 1 and almost two minutes of trial time.

06:06:52 2 The Plaintiff has used five hours and, rounding
06:07:01 3 the seconds -- to minutes, 15 minutes.

06:07:04 4 And the Defendant has used two hours and,
06:07:07 5 following the same procedure, 47 minutes.

06:07:11 6 Also, I've reviewed the current state of what you
06:07:17 7 have previously submitted as a proposed charge to the jury
06:07:21 8 and verdict form. And I find that the Court could benefit
06:07:27 9 by a renewed effort on your part.

06:07:29 10 I'm ordering both sides to meet and confer and
06:07:32 11 jointly resubmit a revised and updated proposed final jury
06:07:39 12 instruction and verdict form by 3:00 o'clock tomorrow
06:07:43 13 afternoon.

06:07:43 14 In those areas where you have differing positions
06:07:47 15 or you disagree, your competing proposals should be
06:07:55 16 submitted in that single joint submission. Either use a
06:07:58 17 different font, use a different color highlighting, but
06:08:01 18 make it so that clearly I can see Plaintiff's version
06:08:05 19 throughout the documents and Defendants' version throughout
06:08:07 20 the documents at any place where you don't agree. Where
06:08:10 21 you agree, I expect to see plain print without highlighting
06:08:14 22 or a change in font.

06:08:15 23 And you should submit that to my staff directly by
06:08:21 24 email with a Word version. And, again, I'd like to have
06:08:26 25 that in my possession by no later than 3:00 p.m. tomorrow.

06:08:29 1 I'll remind you to continue to meet and confer
06:08:34 2 strenuously and diligently overnight. I'll be available by
06:08:38 3 7:30 tomorrow if there are disputes that are otherwise
06:08:42 4 unresolved.

06:08:44 5 And I'll look for an up-to-date binder at 7:00
06:08:49 6 o'clock at chambers outlining any surviving disputes.
06:08:54 7 Hopefully, there will be few or none. But to the extent
06:08:58 8 there are, showing me what is in dispute and giving me a
06:09:02 9 clear but concise position in writing of each party's
06:09:07 10 position, not only the offering party or the party that
06:09:10 11 intends to use it but the objecting party.

06:09:12 12 As I told you in chambers this morning, your work
06:09:16 13 in this regard improved from Monday to Tuesday. I would
06:09:18 14 expect the same amount of improvement from Tuesday to
06:09:21 15 Wednesday.

06:09:23 16 All right. Are there questions from either
06:09:28 17 Plaintiff or Defendant or other issues we need to take up
06:09:30 18 before we recess for the evening?

06:09:34 19 MR. FENSTER: Yes, Your Honor.

06:09:34 20 THE COURT: Go to the podium. Yes, let me hear
06:09:37 21 from you, Mr. Fenster.

06:09:40 22 MR. FENSTER: Your Honor, I would just like to
06:09:42 23 clarify. So during the cross-examination of Mr. Credelle,
06:09:48 24 the Court mentioned that it was not a previously disclosed
06:09:54 25 demonstrative.

06:09:55 1 It is the parties' understanding that --

06:09:57 2 THE COURT: Wait a minute. What was not a
06:09:59 3 previously disclosed demonstrative?

06:10:00 4 MR. FENSTER: I apologize. The report, when
06:10:04 5 Mr. Haslam meant to show the report. The report was
06:10:08 6 improper to show because it was hearsay, not because it was
06:10:11 7 a demonstrative.

06:10:12 8 The parties' understanding is that demonstratives
06:10:16 9 do not need to be -- for cross-examination do not need to
06:10:20 10 be previously disclosed. And so I just wanted to clarify
06:10:22 11 that for the Court.

06:10:24 12 THE COURT: Well, as I think I said on the record,
06:10:26 13 the report is not evidence. The witness's testimony based
06:10:30 14 on the report and supported by the report is evidence.

06:10:33 15 MR. FENSTER: Yes, Your Honor. But one of the
06:10:37 16 Court's comments, I may have misheard, but -- was that you
06:10:42 17 asked Mr. Haslam is this in evidence or a previously
06:10:47 18 disclosed demonstrative.

06:10:48 19 So I just wanted to clarify that cross-examination
06:10:51 20 demonstratives do not need to be previously disclosed in
06:10:55 21 order to show them to the Court.

06:10:57 22 THE COURT: Well, part of any possible confusion
06:11:04 23 may be that everything either side puts on the screen
06:11:08 24 during this trial either has an exhibit number on it or it
06:11:11 25 has a DDX or a PTX demonstrative number on it, and even if

06:11:16 1 it's been disclosed or not disclosed, it's marked.

06:11:20 2 And I saw -- I saw counsel flipping through a
06:11:23 3 document that was not marked as either a demonstrative, it
06:11:26 4 was not marked as an exhibit, and the author of that
06:11:30 5 document was being questioned about it, particularly with
06:11:32 6 regard to drawings and figures that seem to be available
06:11:35 7 through other means that were admitted exhibits,
06:11:40 8 particularly some of them coming from the patents-in-suit.

06:11:42 9 So that's where I questioned why we were doing
06:11:48 10 what we were doing.

06:11:50 11 MR. FENSTER: I understand, Your Honor.

06:11:51 12 So, just to be clear, demonstratives will be
06:11:53 13 marked before being shown on cross-examination --

06:11:56 14 THE COURT: And whether they're disclosed or not
06:11:58 15 is a different matter. And it not being marked is what
06:12:02 16 raised the issue with me.

06:12:03 17 MR. FENSTER: Thank you for the clarification.

06:12:05 18 THE COURT: All right. Mr. Haslam, is the
06:12:06 19 Defendant aware of anything that needs to be taken up
06:12:08 20 before we recess for the evening?

06:12:10 21 MR. HASLAM: No, Your Honor.

06:12:12 22 THE COURT: All right. Counsel, be productive as
06:12:15 23 you meet and confer overnight. And I will see you in the
06:12:17 24 morning.

06:12:18 25 The Court stands in recess until tomorrow morning.

06:12:25 1 COURT SECURITY OFFICER: All rise.

06:12:26 2 (Recess.)

3

4

CERTIFICATION

5

6

7

I HEREBY CERTIFY that the foregoing is a true and
correct transcript from the stenographic notes of the
proceedings in the above-entitled matter to the best of my
ability.

10

11

12

/S/ Shelly Holmes

3/2/2021

13

SHELLY HOLMES, CSR, TCRR
FEDERAL OFFICIAL REPORTER

Date

14

15

16

17

18

19

20

21

22

23

24

25